

TOP 10
PD PICKS
—P. 53

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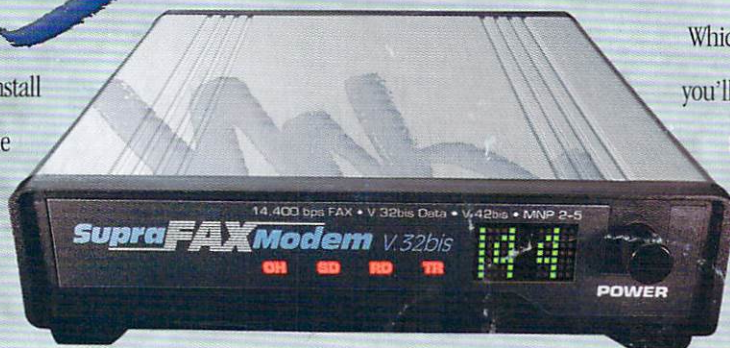
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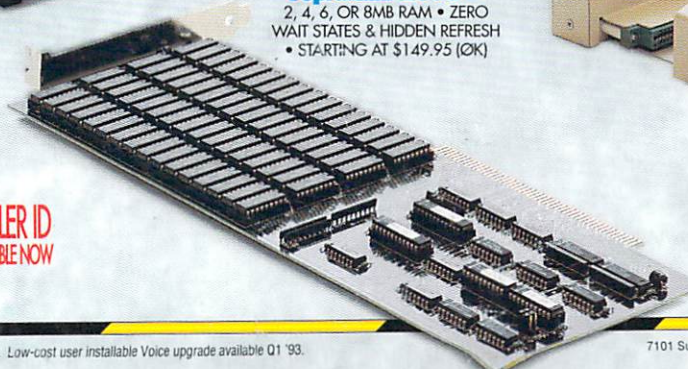
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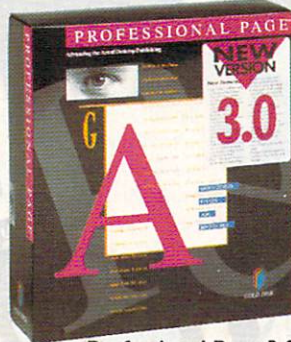
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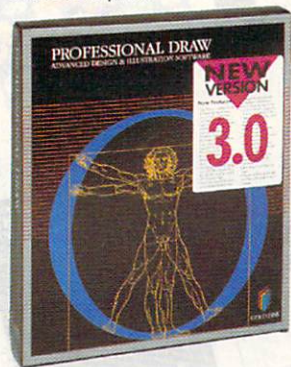
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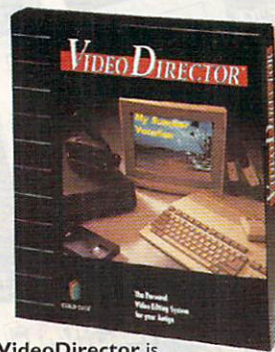


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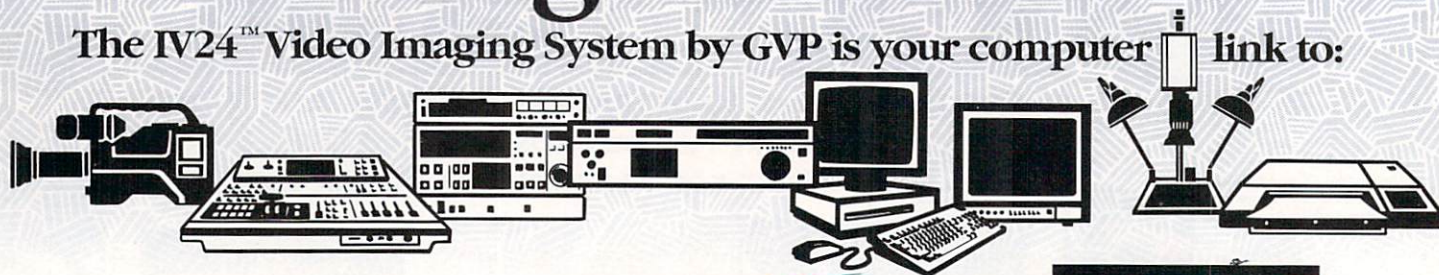


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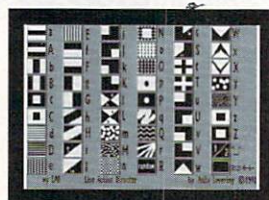
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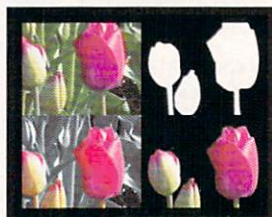
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"I found a link to creating great special effects on Nickelodeon's Nick Arcade..."

Karim Miteff Co., Producer, Nickelodeon Arcade, Bethesda/Producers, Orlando, FL

"I created 24-bit files from graphics to keep their colors intact. These images were captured by the Quantel Paintbox® from the IV24's analog RGB output. The Paintbox generated background then captured by the IV24 via RGB. The most telling testament to the board's quality is that the IV24 received the best response of all the Amiga-related devices I have shown broadcast engineers."



Graphic Courtesy of Nickelodeon

"I found a link to corporate presentations"

Bill Evans, Corporate Communications Technician, Fabmet Corp., Garden Grove, CA

"I use the IV24 mainly as a 24 bit display device in an A3000. I scan in 24 bit images with an Epson® 24 bit scanner, and then network them to a Video Toaster®. The finished product is displayed in our training room on two 27" Mitsubishi® monitors I will also use the IV24 with a Polaroid® freeze frame unit."

"I found a link to great animations..."

Tom Hutchison, Producer, Wild Orchid Graphics, City Rock, OR

"IV24 is what I've been waiting for. I use it with Imagine® software to produce animations for a local cable company. I really like being able to use one monitor and have a de-interlaced output that integrates into the system better than any other frame buffers I looked at."

"I found a link to a money-making opportunity..."

PAUL GILMAN, Entrepreneur (Scientist / Retired, Kodak), Personal Sports Cards, Penfield, NY

"I bought GVP's IV24 so my grandson and I can make and sell personalized baseball cards with Deluxe Paint®. The IV24 is the only product on the market with the RGB IN and OUT I needed to connect my video camera to a Kodak® thermal printer. It suits my needs perfectly. I've used many IV24 features — including Picture-In-Picture — and they're all superb."



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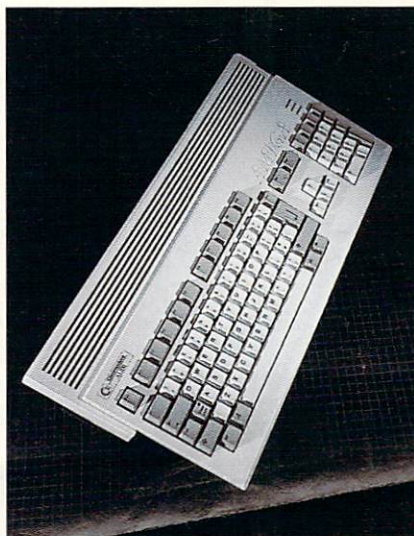
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GVP Introduces G-LOCK

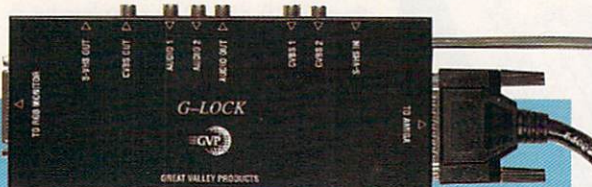
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AmigaWorld (ISSN 0883-2390) is an independent journal not connected with Commodore Business Machines, Inc. *AmigaWorld* is published monthly by TechMedia Publishing, Inc., an IDG Company, 80 Elm St., Peterborough, NH 03458. U.S. subscription rate is \$29.97, one year; \$57.97, two years; \$83.97, three years; Canada, \$41.97 (includes GST), and Mexico \$38.97. Foreign Surface \$49.97. Foreign Airmail \$84.97. U.S. funds drawn on U.S. bank. Prepayment is required on all foreign subscriptions. All foreign rates are one-year only. Second-class postage paid at Peterborough, NH, and at additional mailing offices. Phone: 603-924-0100. Entire contents copyright 1992 by TechMedia Publishing, Inc. No part of this publication may be printed or otherwise reproduced without written permission from the publisher. **Postmaster:** Send address changes to *AmigaWorld*, Subscription Services, PO Box 595, Mt. Morris, IL 61054-7901. Nationally distributed by Kable News Co. *AmigaWorld* makes every effort to ensure the accuracy of articles, listings and circuits published in the magazine. *AmigaWorld* assumes no responsibility for damages due to errors or omissions.

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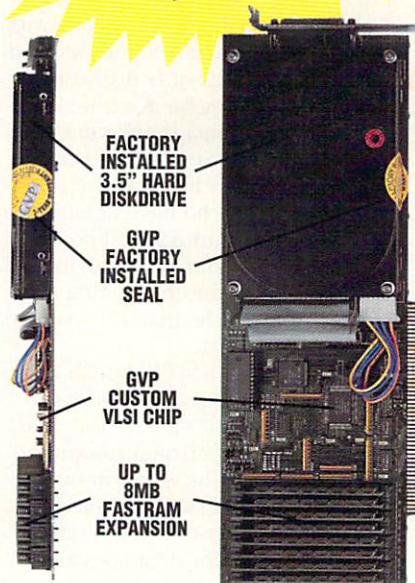
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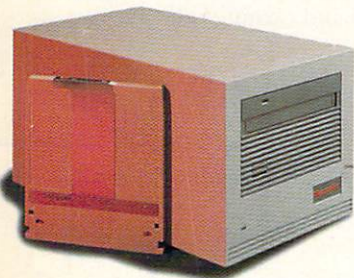
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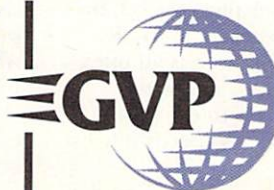
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EDITOR'S DRAWER

Now that the elections are over, it's time for some straight talk in response to some startling allegations and misconceptions that persist in the Amiga market.

DEBUNKING SOME MYTHS

It's a new year and a time for new beginnings. But first, we need to take stock of the past and clear away any cobwebs of confusion in this market.

Myth: The Amiga computer is just a game machine.

Fact: Right, and Michael Jordan is just a good sneaker salesman. I've played some great games on the Amiga—Prince of Persia, Shadow of the Beast, Sword of Sodan—that more than justify the price of the machine. But, I also do other things with my Amiga. Early on in its career, the Amiga, with its superior video and sound, was saddled—and subsequently dismissed by many—with the game machine label. To group the Amiga in the same class as Nintendo and Sega ignores the significant accomplishments of developers and users who have demonstrated the Amiga's multifaceted potential. It's as well suited for productivity and creativity as it is for entertainment.

Myth: Only niche markets are available for the Amiga.

Fact: It's true that the Amiga is breaking new ground in specialized applications, but it's also being used for broad-based personal computing. Multimedia, graphics, and desktop video set the Amiga apart from the other systems, but this doesn't mean that it isn't used for databases and spreadsheets...in schools, in businesses, and in homes.

Myth: The European market is the same as the US market.

Fact: *Au contraire, mes amis!* That's like comparing baseball to cricket, or the dollar to the deutsche mark. Remember that Commodore is an international company with interests throughout the world. In the past, it has developed products specifically for

foreign markets, with no intention of introducing them to US shores. The Amiga's dominance in Europe does not easily translate into success in the States. What moves in Marseilles may not necessarily play in Peoria.

Myth: All Amiga users suffer from IBM/Mac envy.

Fact: If Freud were alive today (and he'd be an Amiga user, I'm sure) he might tell us that this represents the unconscious truth more than we care to admit. IBM- and Apple-bashing are still too prevalent in this market. The "us-and-them" attitude stems from an inferiority complex that Amiga users have developed defending their computers. We spend too much time worrying whether one platform may be cheaper, faster, or have better support. We should be mainly concerned with whether we're getting the job done efficiently and effectively.

Myth: There are no first-time users in the Amiga market.

Fact: Buying a computer today is like visiting a library. The choices are numerous, and you encounter more numbers than in the Dewey Decimal System. This market has its share of professionals, and can lay claim to some of the most technically sophisticated users in the industry. Still, the Amiga, with multitasking, high-quality graphics, and sound capability—all for a reasonable price—is the choice computer for many applications, and is especially appealing to newcomers.

Myth: The only reason users buy an Amiga is the Video Toaster.

Fact: This allegation must have been perpetuated by Commodore-bashers who eventually went on to work in political campaigns. Sure, the Toaster is a breakthrough in creating a video-effects studio on your Amiga, but it certainly isn't the Amiga's *raison d'être*.

Developers have helped to refocus and exploit the potential of the Amiga's role as the leading player at graphics, sound, and animation. Without third-party companies supporting Commodore, it would be hard for the Amiga to exist. The Toaster is one of the good things that has happened to the Amiga, but not the only good thing.

Myth: AmigaWorld is written only for professional graphics and video types.

Fact: AW is for not only the high-end videographer, but also the home computer user. I'm not satisfied with a user base of all gamers...or all desktop videographers. A mix of users with varied interests will push this market. One of the formidable tasks confronting AW is to balance the specialties of the Amiga with broader system coverage. We want a multipurpose magazine for a multipurpose machine.

Myth: Commodore will rest on its laurels and let users and third-party developers carry the market.

Fact: Like Woody Allen, Commodore has an image problem. While it's not my function to serve as a male cheerleader for this market, I will give credit where credit's due...and now is one of those times. With Commodore's introduction of the new line of AGA machines (see this issue's cover story), we may be entering an era of unbridled optimism unlike anything this market has witnessed before. Hang on for a wild and exciting ride.

Dennis Brisson

Dennis Brisson
Editor-in-Chief

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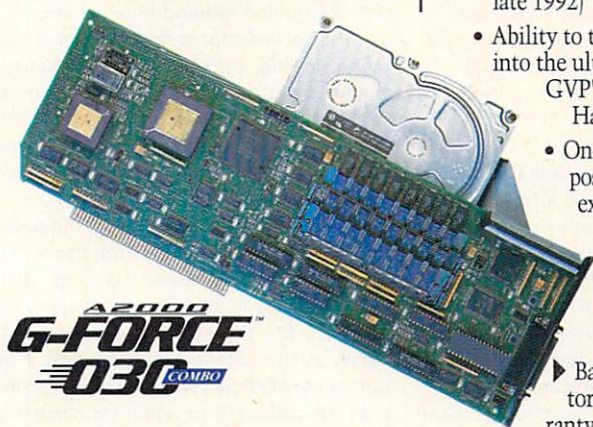
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Perfect Holiday Gift Ideas

OVERSCAN

News, New Products and Networks

ART FOR KIDS' SAKE

LOS ANGELES—Abuse. Poverty. Serious illness. These things can have a huge impact on a child's life. But then again, so can opportunity, caring, and a helping hand.

And that's why Music For Life exists. This nonprofit, volunteer organization gives troubled kids a chance to express themselves creatively and strengthen their self esteem. The means to these noble ends are Amiga music, graphics, and animation workshops.

"I am convinced [the Amiga] is a tremendously powerful tool that can positively impact the lives of the young

people we are serving," states program founder and director Vinnie Tieto. The versatility of the software, says Tieto, lets the children express themselves and produce quality results they can be proud of—without requiring extensive training.

The ultimate goal of the project is an established "classroom" with many Amigas and plenty of creativity products. The volunteers also hope for mobile capabilities that would let them take a fairly comprehensive setup to homeless shelters, homes for abused kids, hospitals, and schools and day-care centers in

low-income neighborhoods.

Several Amiga developers deserve thanks: The Blue Ribbon SoundWorks, Oxxi, Saddleback Graphics, ASDG, Gold Disk, and New Horizons have all chipped in with software to further the cause. "They really want to make a difference with their products and are showing it by making donations," says Tieto. More is needed, though, so consider volunteering your Amiga skills. And consider donating your used computer equipment to Music For Life, 12228 Venice Blvd., Suite 161, Los Angeles, CA 90066, 310/842-7835.

—Barbara Gefvert

UPDATE! UPDATE!

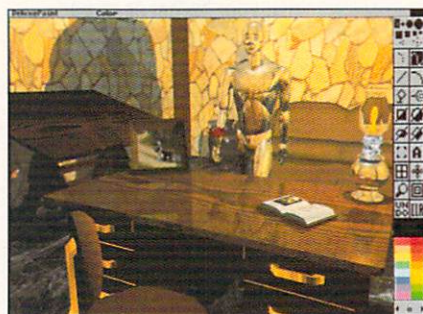
Longing to use good-ol' DPaint on your new AGA-equipped Amiga? Long no longer. **Electronic Arts** has released a **DeluxePaint IV** upgrade designed specifically for the chip set featured on the Amiga 4000 and 1200.

DeluxePaint-AGA takes full advantage of all the new display modes, including 256-color and enhanced-HAM8 displays. Among other changes are improvements to color support (which has been extended to a full 24-bit palette), 2.0-style screen requesters, and support for larger blitter operations. DPaint-AGA can also read 24-bit files and convert them to whatever display mode you are using, even though the program does not display or write 24-bit data.

Other changes serve as fixes to minor bugs discovered in the earlier release of DPaint IV.5. And while the program is targeted at AGA machines, it also supports SuperHires and Productivity modes for 2.0/ECS machines.

Those who already own **DeluxePaint IV** can trade up for \$39 through **Electronic Arts**. DPaint-AGA will also be available in stores for \$179. (RS# 110.)

There's news on the 3-D front from both **Octree Software**, maker of the **Caligari** line, and **duBois Animation**, creator of **Animatrix**



This image, converted from its original 24-bit format through ADPro, appears on this DPaint display in 752x480 HAM8 format.

Modeler.

Octree has announced that **Caligari24** (\$399) will replace **Caligari2**. You get more than just an extra digit with the new software—you also get hierarchical animation, organic deformation, 32-bit color, IFF textures, and more. The program outputs up to 736x482 (NTSC) or 736x575 (PAL), and supports a number of display devices, including GVP's IV24, **Impulse's FireCracker**, **ACS's Harlequin**, **Centaur's OpalVision**, **Digital Creations' DCTV**, and **Black Belt's HAM-E**. **Caligari24** reads and writes **Videoscape** and

LightWave 3D formats. It also reads **Sculpt 3D**, **Imagine**, and **AutoCAD DXF 3D** object formats. Further, it supports **Rendition**, **IFF**, and **DCTV** images for texture mapping. **Caligari24** requires at least 2MB of RAM. (RS# 119.)

Animatrix Modeler's latest version, 1.2, promises an easier, more accessible interface and compatibility with both **LightWave** and **WaveFront** object files. It also provides two new stereoscopic viewing options that you can take advantage of with either **Haitex Resources' X-Specs 3-D** stereo-vision goggles or the supplied red-and-blue glasses.

Other new features include real-time rotation, scaling, and translation, in addition to single- and grouped-point editing, edge and face subdivision, point joining, and more. The program is \$139.95, but current owners can upgrade through **duBois Animation** for free. (RS# 111.)

If you've been trying to locate the genealogy program **Your Family Tree** through **MicroMaster**, you've been barking up the wrong company. After the firm's recent dissolution, the project manager purchased rights to the software and formed a new company, **MVP Software**. MVP will provide tech support and information to current and future YFT owners, and continue to develop the product.

To locate the vendors of products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 108.

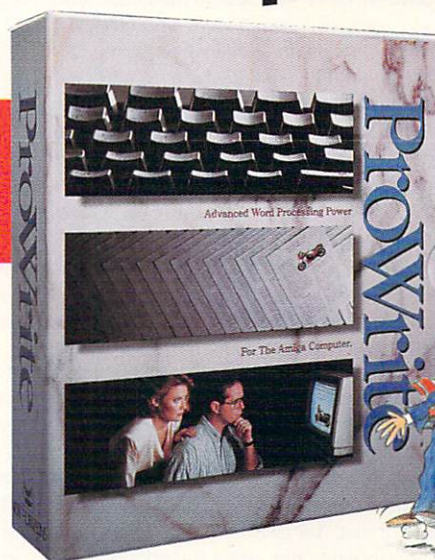
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Circle 65 on Reader Service card.

Now available is YFT 2.2, which runs under Workbench 2. MVP is also working on a YFT utility package, slated to provide GEDCOM import and export, tiny tafel, additional reports, and other functions. (RS# 112.)

CREDIT CARD RAM

Just because your A600 is small doesn't mean its RAM capacity should be. Now **New Media** gives you up to 4MB more fast RAM with its **PSRAM IC Card**. The credit-card size auto-config expander fits into the computer's PCMCIA slot.

According to New Media, products competing for that slot are SRAM boards that cost as much as \$250 per meg and are limited to 2MB. Populated with 4MB New Media's card costs \$299; with 2MB it runs \$189. (RS# 125.)

OUT AND OUT TOOL

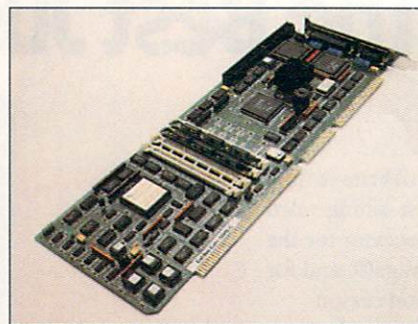
Thinking about doing some work under the hood of your Amiga? You'll need both a chip puller and a torx screwdriver—or you'll need an **Xtractor+** (\$12.95, **Better Concepts**). Costing about the same as one of the conventional tools, Xtractor+ is able to pull PLCC and DIP chips and release the torx screws from your case and/or motherboard. (RS# 117.)

MORE MS-DOS ON AMIGA

Vortex grants further entry into the world of IBM products—via Amiga. Now, its **Golden Gate 486SLC** (\$1099) lets you access such ISA expanders as EGA/VGA graphics boards and LAN cards from your A2000 or A3000. The 25 MHz 80486 SLC PC/AT emulator provides RAM capacity up to 16MB (2MB are included) and an IDE controller capable of driving one PC/AT hard disk with an AmigaDOS partition under MS-DOS. An optional controller allows access to three (one internal, two external) high-density (2.88MB) floppy-disk drives. Under AmigaDOS, you can read, write, and format up to two of these floppies.

The system takes advantage of Amiga multitasking, runs under Kickstart 1.3 and 2, and promises peaceful coexistence with accelerators, flickerFixers, and internal Amiga hard drives. It also supports Amiga floppy drives in MS-DOS formats 360K, 720K, and for those who have high-density Amiga floppy drives, 1.44MB.

The emulator has been tested with MS-DOS versions 3.2 to 5.0; Windows 3.0 and 3.1 operate in the Protected/Enhanced 386 mode. Vortex says the Golden Gate 486SLC CPU is compatible with the 486SX command set. The company also says that because of its 32-bit internal/16-bit external



IBM 486 compatibility comes to your Amiga via Vortex of Germany.

data bus, 1K cache chip, and 25 MHz clock frequency, the device is up to 2.4 times faster than a 25 MHz 386SX processor.

Whether you choose Vortex's 486 emulator or its Golden Gate 386SX, you should also know about **Monitor Master** (\$128). A small, external box, Monitor Master lets you connect both an EGA/VGA graphics card and the Amiga's video output to a single multisync monitor. It provides full VGA video output under MS-DOS to the standard 1084 Amiga monitor and several others, including Toshiba T3100, Hercules, and Olivetti terminals. (RS# 114.)



ON-LINE SCAN

By Tim Walsh

These days, the Amiga 4000 makes for almost as much conversation on the nets as the A1000 did when it was first released. When the folks at BIX gathered together Commodore hardware and software engineers for a mid-October conference concerning the machine, they didn't have to ask twice for attendees. Mere mention of the event whipped the area's regulars into a frenzy more analogous to a Madonna book signing session than a computer discussion.

Forget the live political debates of October. We're talking real-time excitement here. BIX saw fit to give everyone a chance to thank the machine's makers. If you asked any Amiga enthusiast on BIX

if they'd miss such an event, their reaction time to register a resounding "Nope" would leave Al Gore envious.

ONE-STOP SHOP TALK

Don't fret if you missed the conference. A quick jaunt to the Amiga area on BIX will yield you a4000cbix.lha, the recorded transcript. While Amiga users on BIX are indebted to the personable crew from Commodore for sharing their inside commentary on the A4000, at this writing the computer is not yet well represented on any nets in terms of utility programs.

Portal's all-new AGA Graphics library, however, attracted two listings right off the bat. The first, A2NT-SC11.LHA, is one file con-

taining four programs for the A4000 and some AmigaDOS 2.0x-equipped Amigas. These include AmigaToNTSC and AmigaToPAL 1.1 which, as their names imply, preserve NTSC and PAL mode (respectively), even after loading a custom PAL screen in NTSC mode—or vice-versa.

The other programs are strictly on the A4000 side of the ledger. Aptly named AmigaToDoubleNTSC and AmigaToDoublePAL 1.1, they perform much the same functions as the first two programs, but require Kickstart 3.0 and the AGA chip set to do so.

Long-time Amiga fixture Steve Tibbett provides the second program in Portal's

AGA library, DOUBLEX. LHA. Designed to complement Mode Promotion, DoubleX scan-doubles screens that Mode Promotion does not. With DoubleX in your A4000's startup-sequence, all your screens can be scan-doubled, including those created with such graphic applications as ASDG's ADPro and EA's DeluxePaint.

A quick scan for A4000 files on either Genie or CompuServe won't exactly fill your hard disk. There are a lot of A4000 scanned pictures on Genie, but just one A4000 program—an AIBB module.

CompuServe, unfortunately, did not have even a sole A4000 utility or application as of this writing. But as with the other nets, there's no shortage of small-talk about the machine.

ODDS AND ENDS

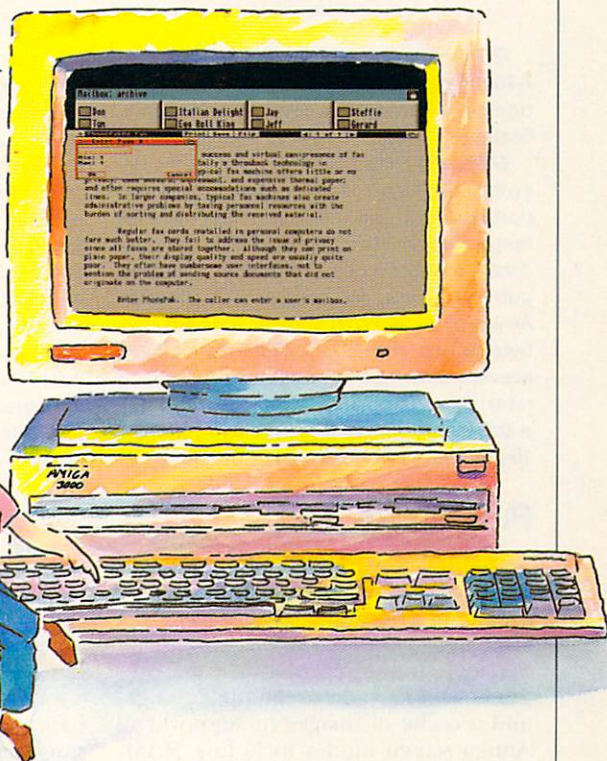
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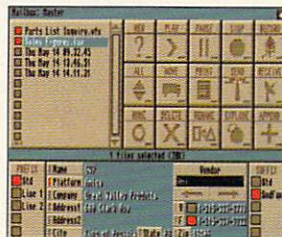
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MANY CONNECTIONS

Got more peripherals than your A2000 or A3000 knows what to do with? Two solutions are here—from GVP and Pre'spect Technics.

GVP's I/O Extender features two software-switchable, high-speed multifunctional serial ports that you can mix and match for a full range of connections while leaving the standard Amiga ports free. A bidirectional parallel port, which you can configure as either an Amiga or PC, is also on board. The card's 16-byte serial port hardware buffers promise to prevent data loss even at very high baud rates. Plus, an optional MIDI expansion box with a rack-mount kit gives you two complete 16-channel MIDI buses, each of which has

five 5-pin DIN jacks providing one in, three outs, and a through connector. (RS# 121.)

With **Pre'spect Technics' MultiFaceCard**, or MFC 2, (\$295) you get two serial and two parallel ports, all of which are external, Amiga-compatible, and able to work simultaneously. It comes with a parallel interface timer, a dual asynch receiver/transmitter, and a switchable interrupt level. The serial connection supports all standard baud rates, up to 57,600 and including MIDI 31,250. You can disable the half-length board via a switch, and operate its functions via a graphical software interface. Pre'spect provides documentation not only in English, but also in French and German. (RS# 124.)

PLAY RIGHT

Would you like to see your animation run in real time—before you lay it down on tape? Then check out **AsimVTR** (\$89, *Asimware Innovations*). You need no single-frame recorder, just the program, your hard-drive equipped Amiga, and a cache of images (it supports all Amiga screen modes including HAM, EHB, and overscan).

You can record an animation to your hard drive, and then use AsimVTR's commands to manipulate the frames. Playback mode features an on-screen VCR-like control panel that provides variable frame rates, pausing, and single

stepping. The software promises frame-accurate editing functions and playback speeds of up to 60 frames per second, depending upon your screen mode and hard-drive controller speed.

Combine AsimVTR with a display enhancer such as DCTV or HAM-E for a presentation-display tool, or use it as a dedicated storage option for your 3-D work by linking it with your renderer via ARexx. (RS# 122.)

Along the same lines, **ANIM Workshop** (*Axiom Software*) can create an animation from a list of RGB files, change an ANIM's format (size, resolution, and



OVERHEARD

Both the House and the Senate have passed The Software Copyright Protection Bill, boosting software piracy from misdemeanor to felony status. The bill grants those who willfully copy software for commercial advantage or private financial gain eligibility for five-year prison terms and fines up to \$250,000. The Software Publishers' Association, which made passage of the bill a priority, now awaits President Bush's signature.

color palette), and more. ANIM Workshop lets you assemble and view full-color animations created with NewTek's LightWave 3D—without using expensive video hardware.

The software even works with animbrushes, so you can convert them from HAM to 16-color; for instance, or change resolutions, or image process them in ASDG's ADPro. And its ARexx interface enables the program to work jointly with ADPro for even more processing and editing power. Those skilled with ARexx can use the language to customize its processing tools. (RS# 118.) ►

great reading, but the new machine isn't in the hands of too many network users yet. Every other type of Amiga is, however, so a venture to Library 4 in the Amiga area on GENIE is in order. That's where you'll find file number 17211, listed as OPLAY-110.LHA, the latest version of the Oplay sound player. With no Intuition interface, you need at least some knowledge of the Shell to use this slick sound-playing utility. Oplay supports some of the more popular sound formats created on the Mac, PC, NeXT, and Sun systems.

Library 4 also houses file number 17184, under the name AUTOCLI230.LHA. Fans of the original AutoCLI from Nic Wilson will thoroughly enjoy this latest update. It is the Amiga-soft-

ware equivalent of the Swiss army knife, with a popular mouse accelerator, window shuffler, function-key programmer, and more.

SYSINFELHA is sufficient reason for any Amiga users with an accelerated machine to pay a visit to CompuServe. Far and away the best version of the acclaimed SysInfo (3.01) resides there in Library 15 of the AmigaUser area. In addition to providing the familiar RAM and performance tests, this gem from the prolific programmer Nic Wilson also lets you monitor device drivers, libraries, resources, ports, and tasks.

No self-respecting Amiga user would be caught without at least one multipurpose, time-saving disk utility such as DiskMaster (Progressive Peripherals) or Directo-

ry Opus (INOVAtronics). But in this tough economy, the price of admission for those utilities might be better spent on two months of lunch money for a couple of kids. A low-cost alternative, MEGAD2.LHA, resides in Library 9 of the AmigaUser area on CompuServe. Touted as "better than Opus," MegaD 2.0's true claim to fame is the ability to open multiple volumes as sources and destinations for disk operations. Indeed, its busy, but well thought-out Intuition interface is packed with as many copying, formatting, and general file-manipulation options as you're likely to find on any commercial equivalent.

There's a look at fast-moving files on the nets. Until next time, here's how to start

your own research:

BIX
General Videotext Corp.
1030 Massachusetts Ave.
Cambridge, MA 02138
800/227-2983
617/354-4137

CompuServe
PO Box 20212
5000 Arlington Center Blvd.
Columbus, OH 43220
614/457-0802
800/848-8199

GENIE
401 North Washington St.
Rockville, MD 20850
800/638-9636

Portal Communications
20863 Stevens Creek
Blvd., Suite #200
Cupertino, CA 95014
408/973-9111

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DSS Stretches the outer limits of 8-bit sound

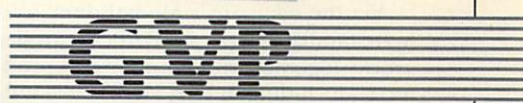
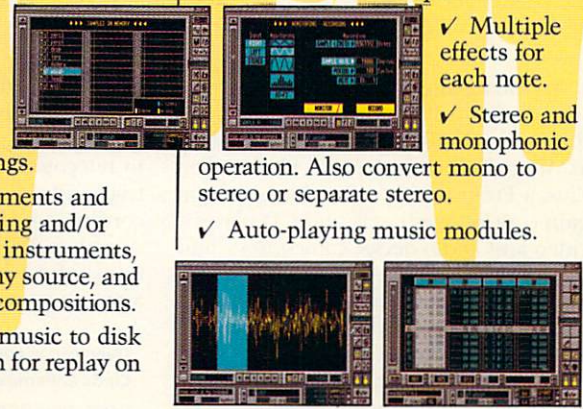
- Create your own 4-track, self-playing musical compositions.
- Make soundtracks for home video, animation or visual presentations complete with voice-over, sound effects and music.
- Analyze voice patterns and stereo separation.
- Analyze graphic equalization of real-time sound.
- Remove "pops" from old phonograph recordings.
- Create custom instruments and sound effects by collecting and/or modifying pre-recorded instruments, voice, or sounds from any source, and use them in your own compositions.
- Save your sound and music to disk or send it out via modem for replay on any Amiga.

Check out these unparalleled features

- ✓ AmigaDOS 2.0 compatible; written in assembly language.
- ✓ Multi-tasking operation.
- ✓ 68020 and 68030 compatible.
- ✓ Comprehensive tutorial manual helps even beginners get started right away.
- ✓ Intuition-based graphic interface makes operation easy.
- ✓ MIDI-in capability.
- ✓ Direct interface between sequencer and editor.
- ✓ Hold 31 sound samples in memory at once — all shown on screen so they are easy to manipulate.
- ✓ Effects and processing capabilities include echo, mix, filter, re-sample, sound data inversion, playing sounds backwards, loops, fade-in/fade-out and more.
- ✓ Manipulate sound samples in real time, as you listen.
- ✓ Create sampled instruments with 1, 3 and 5 octaves.
- ✓ HIFI recording for highest quality playback.
- ✓ Controls for faster/slower playback and filtering high frequencies during playback.
- ✓ Load and save samples, songs and instruments in multiple formats.
- ✓ Multiple effects for each note.
- ✓ Stereo and monophonic operation. Also convert mono to stereo or separate stereo.
- ✓ Auto-playing music modules.

- ✓ Real-time oscilloscope and spectrum analysis.
- ✓ Real-time reverberation.
- ✓ Graphic editing of wave forms through easy-to-use functions, including zoom in/out and precision controls for position, frequency and amplitude.
- ✓ Draw sound waves freehand using the mouse.
- ✓ Direct editing of individual sample numeric values.
- ✓ Maximum recording speed of 51,000 samples/second (38,908 samples/second in stereo).
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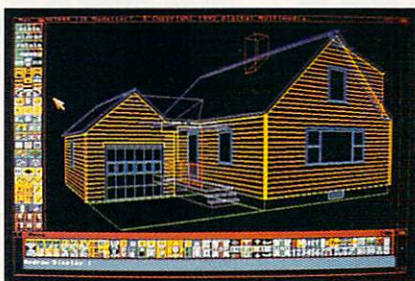
Circle 1 on Reader Service card.

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FROM TWO TO THREE

High-end 2-D drafting and 3-D modeling come together in **GFX-CAD 3000** (\$649). The package, from **GrafX Computing**, includes the long-awaited XCAD 3000 (which incorporates the latest versions of XCAD 2D and XCAD 3D) from the British company AVT. In addition, you get GrafX's own X-Shell and Z-Shell interfaces to make working with the CAD applications easier. The bundle also includes stateside technical support and a six-month subscription to the XPress newsletter, which is dedicated to Amiga CAD.

The new XCAD 3D software can read files you drafted in XCAD 2D, and then save those images in Image/Turbo format for rendering in Impulse's software. If your system has 2MB of chip RAM, you can run the two XCAD programs concurrently with



More than a program, **GFX-CAD 3000** is a multipart 2-D/3-D design kit.

Imagine or Turbo, moving elements between the trio easily.

GrafX offers several upgrade paths for owners of previous XCAD versions. Contact the firm for details. (RS# 126.)

BRIGHT HERE FOR GRAPHICS

Supporting all Amiga graphics modes including 24-bit, 256-color, and 8-bit HAM, **Digital Creations'** new **Brilliance** hopes to set a new standard in Amiga paint and animation software. It promises optimal performance and speed on all Amiga models. According to Digital Creations, most Brilliance operations run faster on a 68000-based Amiga than comparable operations of competing programs run on a 68030 machine.

But speed isn't all that Brilliance

promises. For \$249 you also get dynamic animation capabilities and "real-world" airbrushing. A Gradient mode lets you define eight separate gradient ranges of up to 64 colors each, and an Interpolate option chooses the best in-between colors from your palette automatically. Lots of features and abilities come in multiples: You get multiple picture and animation buffers, brushes, animbrushes, and even multiple levels of Undo and Redo. (RS# 120.)

MORE THAN MORPHING

GVP's Cinemorph software (\$159) enables you to morph one image into another. **ImageFX** (\$369) gives you that ability and more. Image-processing tools for color correction and manipulation, image analysis, image transformation, and photographic adjustments are all part of the package. The program's memory-management system lets you scan images to disk and manipulate

them at high speeds, with low memory overhead (ImageFX requires 1/2MB of chip RAM and 3MB of fast RAM).

Because ImageFX is modular, you can add support for scanners, framegrabbers, printers, and display devices through external software "hooks." ARexx-literate folks can further customize the program, thanks to its support of the protocol. (RS# 123.)

HARDWARE FOR VIDEO

What runs off the Amiga's mouse port, costs \$50, and is infrared all over? Interactive **MicroSystems'** new **Mediaphile 2.0M Infrared Controller**!

Via the company's MediaEditor software (available separately), the controller works together with a number of products—including its own MediaPhile software, Gold Disk's Video Director, Future Video's system, and Sony's VBOX and VISCA controllers—for video editing and multimedia presentation. Plus, it lets you control NewTek's Video Toaster and Panasonic's WJMX switchers for A/B roll and special effects.

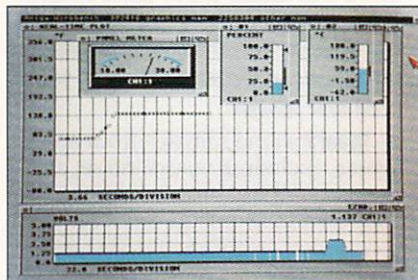
An ARexx interface allows further control over multimedia presentations through such ARexx-compatible software as AmigaVision, Scala, and Showmaker. Plus, a Programmer's Tool-kit helps you gain control over laser- and CD players, video and audio decks, camcorders, and so on from C- and BASIC-language programs. Complete infrared control systems including hardware and software start at \$250 from Interactive. (RS# 115.)

Get in line now for **Allen Avionics'** new line of delay lines. In addition to its original analog devices, the company offers new **Digital Delay Lines** in several configurations

MEASURE FOR MEASURE

Want to monitor the weather, conduct science projects, or set up a home-automation system? **Boone Technologies'** new line of **ezAD** products will help. President Mark Boone says he's responding to a need for simple-to-install data-acquisition systems that work on any Amiga. "You don't need an engineering degree to install and use these products," he states.

The hardware plugs into your computer's second mouse port. It can measure temperature, humidity, pressure, light levels, and other parameters, and trans-



ezAD's software can make a colorful display of your data.

fer the data directly into the computer to save you from entering it manually. The included software lets you display collected data and save it for later evaluation and for export into spreadsheets, databases, and other programs. An ARexx interface is provided for those who want to create custom data displays using an ARexx-compatible authoring program or a programming language.

Complete systems include analog-to-digital converters (eight- or ten-bit) and sensors with single or multiple inputs. Because the low-powered hardware is modular, you can add on when you need more capabilities. And adding on means plugging together, not wiring and soldering. (RS# 113.)

figurations (dual-in-line, single-in-line, and surface-mount) to match any design requirements. The units are applicable to telecommunications, military, industrial, and video-product markets and, according to Allen Avionics, are "ideally suited to high-volume OEM applications," for which auto-insertable packages are provided. (RS# 116.)

Overscan is compiled by Barbara Gefvert, Linda Laflamme, and Tim Walsh. Send your news, new products, and network information to Overscan, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458. ■

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You owe it to your imagination to buy ImageFX.



Carsmeat by Mike Vunck

Image Processing

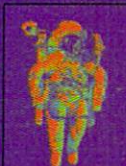
- ★ Regional Processing
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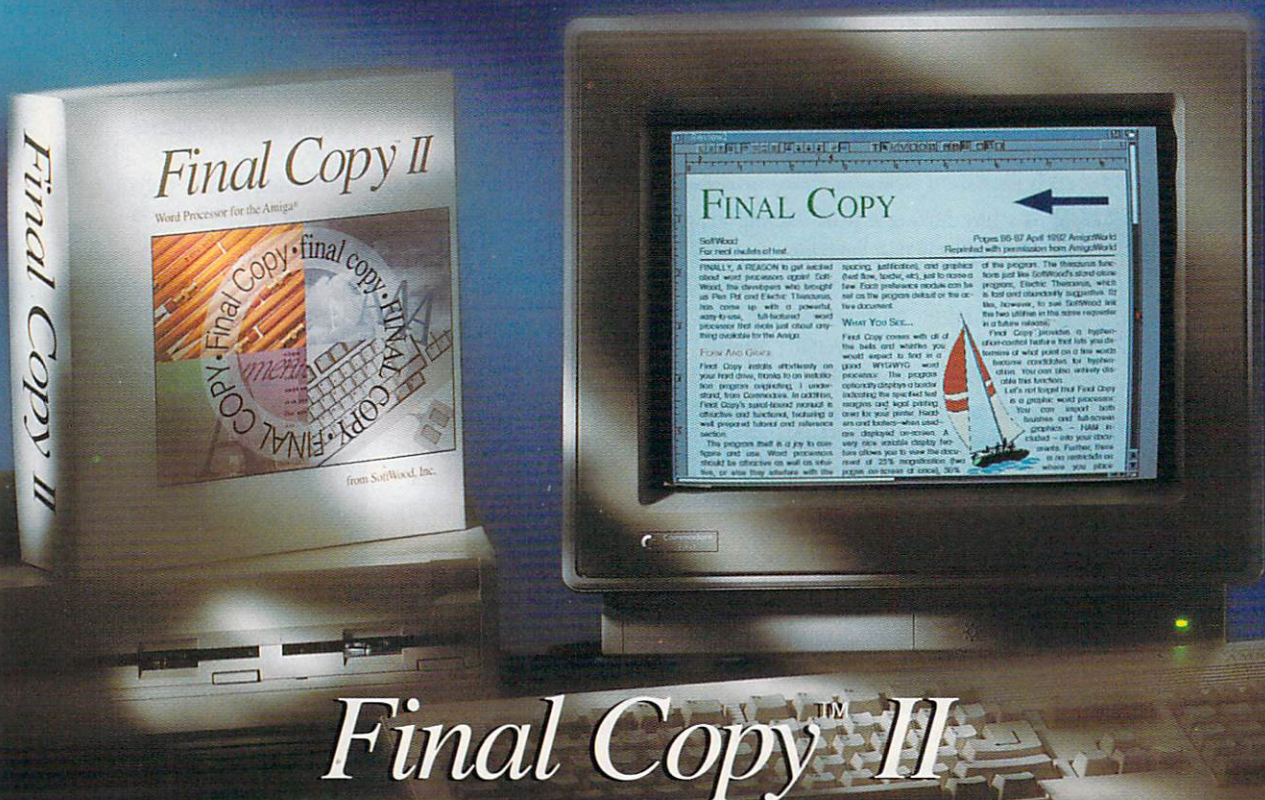
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Final Copy II's outline font features include: 35 outline typefaces; font sizing from 4 to 300 points; variable line spacing; compressed and expanded character widths; underline, strikethru, and small caps styles; superscript and subscripts; positive and negative text obliquing; and color text.

Final Copy II's user interface features include: command ribbon; real-time scrolling; ARexx port; magnified and reduced editable page views; user preferences; WB 2.0 look and feel; mouse zooming; mouse document panning; horizontal and vertical rulers, and page guides.

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JUST TYPE!



Legibility & Readability

Typographic clarity comes in two flavors: legibility and readability. Even though much of the typographic community treats them as such, they are not interchangeable terms. Different typefaces have varying degrees of legibility; while typography should be readable.

Legibility is generally considered to be the ability to distinguish one letter from another in a particular typeface design. Readability, on the other hand, is the degree of ease with which typography can be read. As a result, it is possible to use a highly legible typeface and create unreadable typography. While carefully constructed, readable typography cannot restore missing legibility to a typeface design, it can enhance the message presented by a less than ideal typeface.

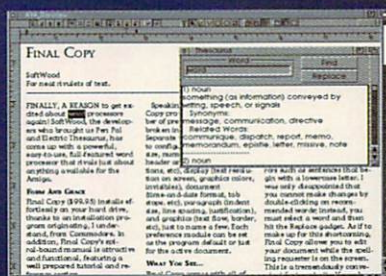
For practical purposes, the definitions are not all that important. What is important is that you are aware of the factors that can affect typeface legibility, and the ways readability can be enhanced—or reduced—through typographic arrangement.

Studies and Reports

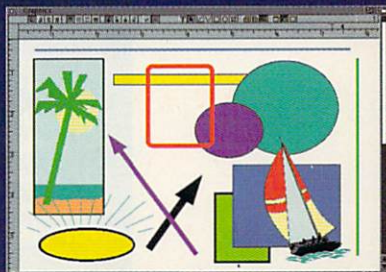
Most of us have heard about legibility and readability studies and their resulting reports. You know, the ones that typophiles refer to when they discuss legibility or readability, and supposedly answer all questions about these two topics. Well, referring to these reports and actually trying to use them can be two very different things. In fact, just trying to find them is difficult.

They are not in neatly bound volumes readily purchased at the local bookstore. Chances are, unless you live in a big city, your public library doesn't have them. Teachers of the communication arts do not often make them available to their students, and manufacturers of typesetting and printing equipment do not include them in their corporate libraries.

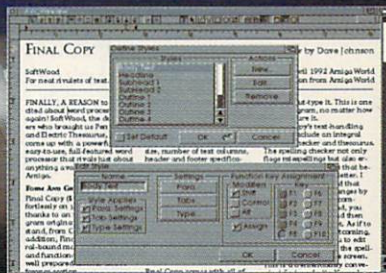
So what and where are these mythical studies? For the most part, they were published as articles in trade journals and scholarly magazines, and they were not normally intended for typographers or graphic communicators. Educators, technical writers, journalists and the like, were their usual tar-



You want a document that reads well in addition to looking good. Final Copy™ comes with a 144,000 word speller, 1.4 million word thesaurus with definitions, master pages, style sheets, paragraph sorting, math, mail-merge, automatic hyphenation, and user-defined tab stops to assist you in your writing.



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Comparison Chart	Outline Fonts Included	Style Sheets	Master Pages	Line, Box, Oval Drawing Tools	PostScript™ Support	Thesaurus Responses	Speller Words	Automatic Hyphenation
Final Copy II	35	Yes	Yes	Yes	Excellent	1.4 million	144,000	Yes
ProWrite 3.3®	0	No	No	No	Limited	300,000	100,000	No

Comparison Chart	Snaking Columns	24 Bit ILBM Support	Editable Page Views	Outline Font Processing	Print 1 pg. Document	Math Support	Outline Fonts 1.3 and 2.0	Print Quality
Final Copy II	Yes	Yes	25-400%	Fast	53 sec.	Yes	Yes	Excellent
ProWrite 3.3®	Yes	No	No	Slow	2 min. 5 sec.	No	No	Fair

System Requirements: Amiga® with at least 1 megabyte of RAM and either a hard drive or 2 floppy drives.

REVIEW

**Audio
post-
production
and audio
for video.**

AD516 AD1012

SunRize Industries

AD516, \$1495; AD1012, \$599.

A2000, A3000.

2.0 compatible.

Hard-drive installable.

Not copy protected.

Internal Zorro II slot connection.

Accelerator compatible.

Installation: Easy.

Minimum system: 3MB RAM, hard disk, audio source.

Recommended system: 68030 or '040 accelerator. 6MB of RAM, hard drive, monitor amp, speakers, mixer.

Professional-quality sampling has come to the Amiga with the arrival of the AD516 and AD1012. Using either board with the included Studio 16 software, you can perform all the traditional audio post-production tasks, including creating sound effects, editing and triggering, editing and replacing dialog, and building multichannel soundtracks in the digital domain. In addition, this audio system functions as a direct-to-disk multitrack recorder, whose capacity is limited only by your hard-drive size and processor speed.

SPIFFY SPECS

The AD516 is a 16-bit digital-signal-processing card, with unbalanced stereo (RCA jacks) in and out and SMPTE in. On board, it carries 256K of RAM, a 10 MIPS digital-signal-processing (DSP) chip, and 64x oversampling digital filters. It boasts a variable sampling rate of 5.5KHz to 48KHz, a signal-to-noise ratio of 87dB, and frequency response from 15Hz to 22KHz. Based around the same DSP chip, the 12-bit mono AD1012 board has slightly lower specs: only 64K of RAM on board, lower-resolution digital filters, and slightly narrower frequency-response range and signal-to-noise ratio. Input and output are unbalanced mono, with SMPTE in.

The hardware places limits on the recording and playback capabilities: On an accelerated system, the AD516 can handle eight virtual tracks and the AD1012 can manage four; without the benefit of a 68030 or '040, the AD516 can tackle only five tracks, the AD1012 one. Both boards use the same SMPTE reader, capable of reading 24, 25, 29.97

(drop frame), and 30 frames per second of LTC (longitudinal time code).

If numbers tend to leave you numb, consider this: 16-bit audio is on a par with CD quality; 12-bit compares quite favorably with FM radio and video HiFi audio tracks. If the end result of your audio endeavors is video or audio tape, either board will sound excellent in the mix. Used with proper care, even the slightly lower-resolution AD1012 produces recordings that are virtually indistinguishable from the input.

STU-STU-STUDIO

The same software, Studio 16, comes with both boards. The program communicates with each board by means of a software driver called a handler. One handler is resident for each card installed in the system, meaning you could install multiple, independently controlled audio boards. Keep in mind, however, that the manual advises against having more than one AD1012 per system.

One of the best-designed and most comfortable around, Studio 16's work space consists of separate, task-oriented modules. Via the Preference section, you can configure and resize all of them and request any combination to be present on screen at startup. Plus, you can set the interface colors, SMPTE specifications (source and rate), memory usage (size of record/playback and edit RAM buffers), and record format (16-bit or one of several eight-bit types).

The Meters module presents analog (VU), LED (peak/hold), and scrolling-graph representations of sound-level changes in input, output, and any of the virtual tracks that are playing. They have the same assets and liabilities as their real-world counterparts: The needle animation in the VU meter does not respond quickly to peaks in the sound lev-

To locate the vendors of the products reviewed, see the "Manufacturers'/Distributors' Addresses" list on p. 108.

WS

el, but it does show the average nicely. The LED style gives a fairly accurate representation of how hot the peaks are and is useful for adjusting the input gain. Looking much like the Editor's oscilloscope display, the scrolling graph plots level against time, providing a good picture of the shape of the entire sample.

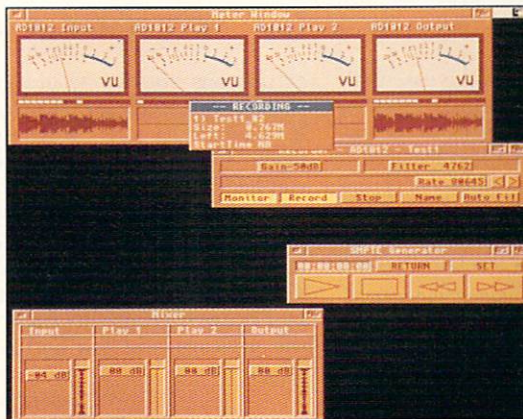
The Mixer controls input, output, and playback levels, as well as pan adjustment on the AD516. It also features a tiny version of the scrolling-meter graph. A second choice you have for mixing is the resizeable Tiny Mixer module, which although it lacks pan control takes less processing time for its more Spartan display. If there are too many displays active on the screen at one time, the system and its capabilities can bog down.

Studio 16 offers two ways to record a sample: the Recorder module and the Transport module. From the Recorder you can set the filter and sample rates, adjust input gain, name the sample, and start and stop the recording. Combining a multitude of functions into one window, Transport gives you all the record options plus playback possibilities. You can play and remix tracks onto an open track with no loss of fidelity—everything remains in the digital domain. You can even record the entire Cue List (samples triggered at precise SMPTE times) to an open track.

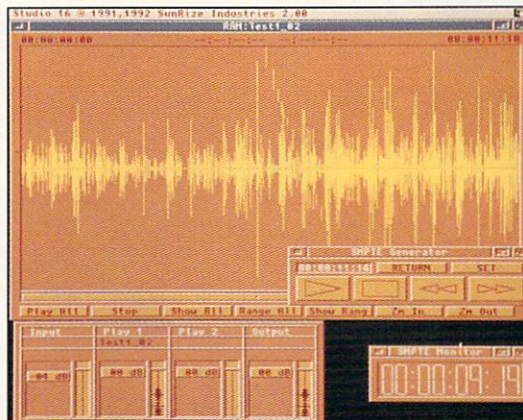
The Editor allows for destructive and nondestructive alterations to recorded samples. Editing is a matter of highlighting a range of the sample display and selecting an action to perform upon it. You can cut, copy, paste, and insert, as well as freehand draw, fade in and out, resample, generate silence, echo, invert, and more. You can even use ranges as separate samples without resaving them.

Other modules include the Cue List, SMPTE Monitor, SMPTE Generator (for internal use only), Open List (a list of samples by directory used to play, rename, delete, and launch editing), and Real Time Delay. Completely taking over the Studio 16 environment, the latter performs real-time chorus, delay, flange, or echo on the input, allowing full control over all the parameters, and then sends the results to the output.

The Studio 16 manual is extensive and it is well-organized and clear. Substantial background information on digital audio and tutorials are provided, followed by a reference section for each module. The book closes with several lengthy essays on au-



The software behind the audio boards, Studio 16 is composed of many modules.



Once you sample your waveform, you can inspect it, sync it, and play it.

dio post-production techniques and audio-for-video applications.

SMOOTH SOUNDS

I used both boards extensively in under-the-gun audio post-production situations, and they quite literally saved me hours of sleep and gray hairs. The Studio 16 software, now at version 2.04, performed smoothly, with none of those annoying surprises that seem to blossom from equipment under pressure. In one situation, without the benefit of SMPTE lock, I was able to accurately set a sequence of sound effects and spot dialog replacement and then play it back in real time along with a Bars and Pipes Professional soundtrack.

Bars and Pipes Pro Tools and Accessories are included with Studio 16 to bring it under the sequencer's control and allow its operation from within the composing environment. The tools include the ability to cue samples to MIDI notes, synchronize the MIDI tracks to SMPTE using the port on the SunRize card, synchronize the playback of a full digital-audio track to a MIDI score, and access all of Studio 16's windows and features.

Studio 16 can respond to Shell commands and play samples on cue in the background, even while the Video Toaster (notorious for its ability to interfere with audio and parallel-port activity) is running. This allows it to be used easily with such multimedia authoring programs as AmigaVision (Commodore) and CanDo (INOVAtronic).

The price for performance is rather intensive hardware requirements. The system works on an unaccelerated Amiga, but with diminished capability ▶

ities and speed. A hard drive is essential, and because samples are constantly written to and read from it, SunRize recommends a separate partition for audio work to minimize the possibility of errors corrupting the disk. I heartily agree, even though I experienced no problems with disk access. I used a relatively slow 300-megabyte magneto-optical drive and, by offsetting the trigger time, was able to enjoy playback in sync.

While the Editor allows you to clean up the sample considerably and remove

extraneous noises, the old garbage in, garbage out adage applies. I also strongly recommend an accurate audio-monitoring system. With digital audio, what you hear is what you will get.

Any tool that does its job, and does it elegantly, is a bargain. Both the AD1012 and the AD516 are that and more. These are truly breakthrough systems that bring high-quality digital audio to the desktop and low-end production studio.

—Michael Hanish

WILL VINTON'S PLAYMATION

Will Vinton's Playmation, \$349

Hard-drive installable.

Not copy protected.

2.0 compatible.

Accelerator compatible.

Minimum system: 68020 accelerator with FPU, 5MB of RAM, hard drive.

Recommended system: 68030 or better, 7MB RAM, hard drive.

Spline-based modeling and 3-D character animation.

Will Vinton's Playmation is the latest incarnation of Hash Enterprise's Animation:Journeyman, the Amiga's first spline-based 3-D modeling and character animation program. While the concepts behind the program remain the same, Playmation sports a more professional and easier-to-use button interface. You rarely need to go to a pull-down menu to issue a command anymore.

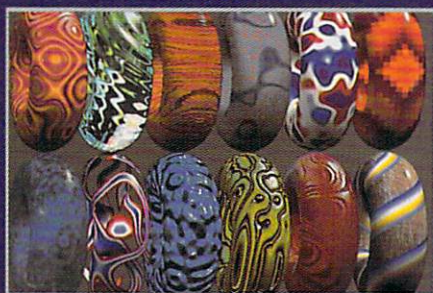
FIVE EASY PIECES

Playmation consists of five modules that take you through the process of designing and animating 3-D models. First is the Sculpture module, where you create the individual segments of the 3-D characters. Unlike other Amiga 3-D modelers, Playmation uses splines, not polygons, to create objects. The splines approach lets you more easily construct natural-looking objects with smoother curved surfaces.

While spline-based modeling may take some getting used to for the polygon faithful, many familiar editing options are available, such as extruding and spinning objects. You can edit objects on a single-point basis or on groups of points. Playmation lets you scale and rotate objects in real time, and adjust the curvature of individual splines. The objects in the Sculpture module are displayed in wireframe mode, with shaded versions available at the click of a button.

After building the individual segments, you assemble them and specify the object hierarchy in the Character module. By defining a parent segment (for example, a hand) and then assigning it children (the individual fingers), you can later define life-like motions. You can also assign attributes to each segment. Aside from the usual choices (color, specularity, reflection, and so on), Playmation has several built-in textures for you to edit and assign to your object. As you edit the textures, Playmation dis-

The magic carpet ride begins...



Rub the lamp

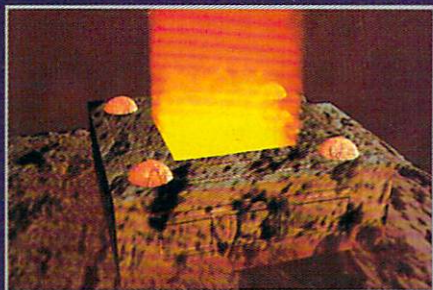
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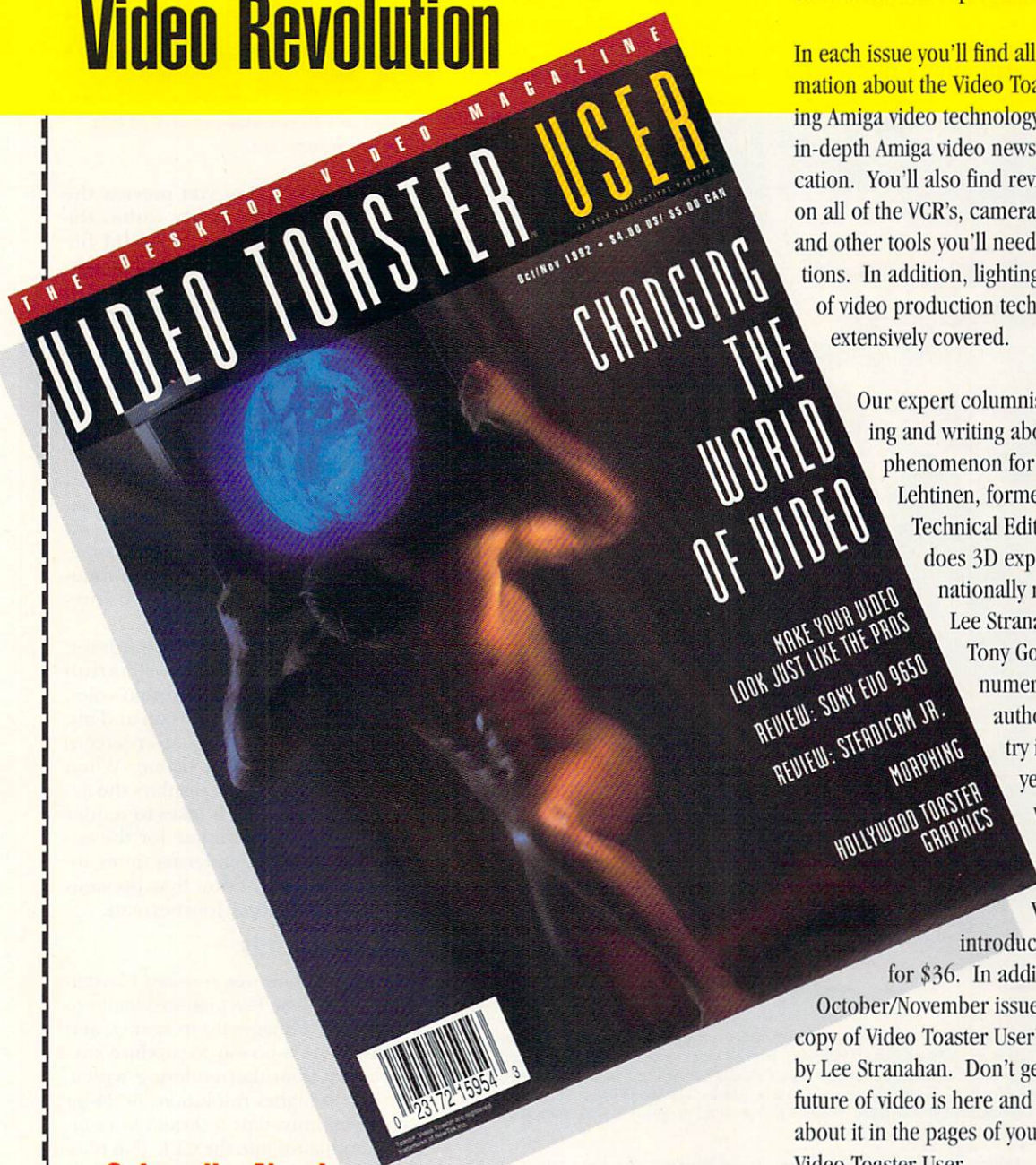
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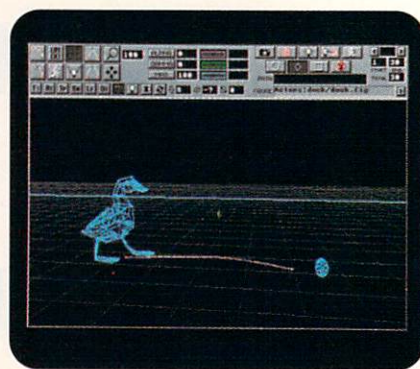
**FREE copy of
"101 Toaster Tips"
by Lee Stranahan.**

REVIEWS

plays the changes in a small preview window, making adjustments much less time consuming. You can also place IFF images on segments, and brushes can act as color, transparency, bump, diffuse, or specular maps.

The next step involves the Action editor, where you add motion to your objects. Playmotion allows for Skeletal movement (such as walking) and Morphing/Muscle movement (such as a character's lips changing shape during speaking). The program also allows the

definition of a spline as an object's spine, making movement such as bends look more natural. You create the different types of movement by adjusting a character's position in user-defined keyframes. For precise control and easing in and out of a motion, you use Channels, which are graphic representations of movement. You can save the different types of moves separately and load them later for other figures, saving loads of time in future projects (no need to constantly re-create that perfect walk



Will Vinton's Playmotion excels at 3-D character animation.

cycle). Playmotion lets you preview the action in wireframe, either within the program or by creating an ANIM file and playing it through the supplied Display program.

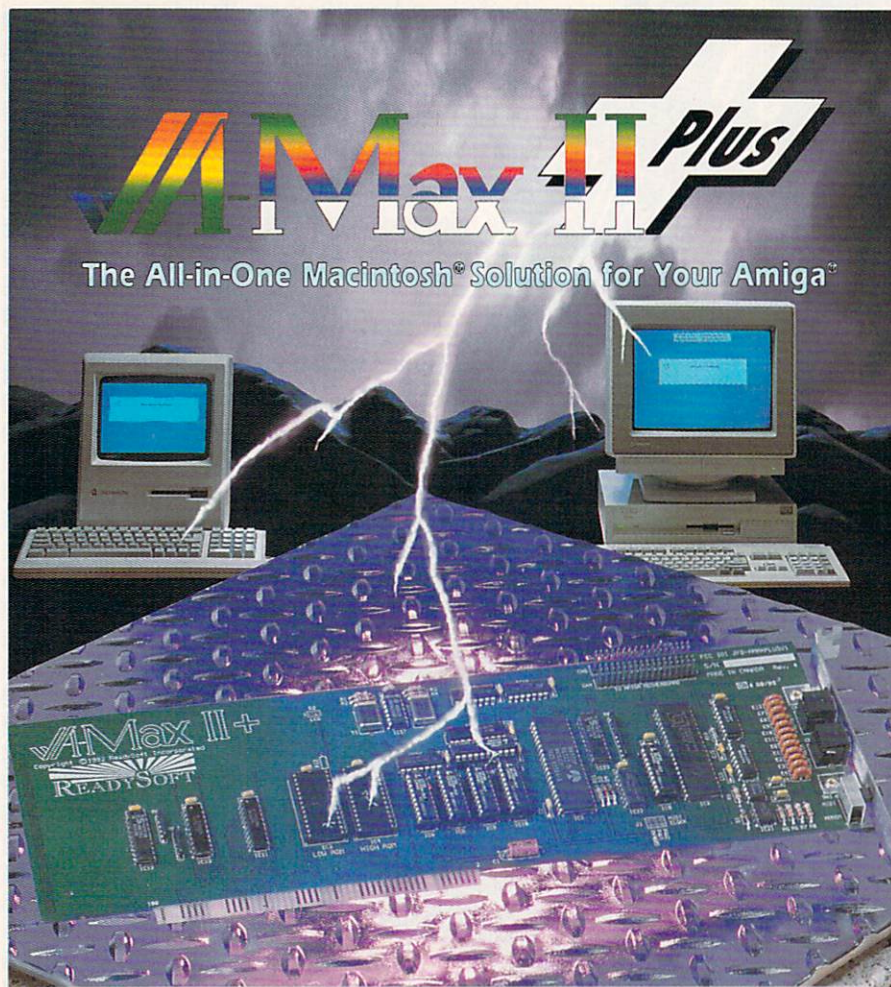
You pull together the final animation in the Direction module. Here, you assign characters to a path, load their various movements into master lists, and manipulate your camera and light sources. A set of lines emanating from the camera shows exactly what it's pointed at, eliminating guesswork. Light sources indicate their areas of illumination in the same manner, so exact light placement is much easier than in some other programs. As in the Action module, Direction lets you compile a wireframe preview at any time.

The final module is the Renderer, where you compose the animation frames. You can set a background color, turn shadows and reflections on and off, and then choose a mini- (quarter-screen) or standard-size ANIM frame. When rendering, the program displays the average amount of time it takes to render each frame and an estimate for the entire animation. The rendering times are acceptable, certainly faster than previous versions of Animation:Journeyman.

BACK TO THE CLI?

The Renderer, however, contains Playmotion's greatest flaw. Playmotion defaults to 320x200 HAM images for its frames, and currently there is no way to produce anything larger from the rendering screen. To render in higher resolutions or 24-bit images, you must type a series of nonintuitive commands into the CLI. This is inconvenient, annoying, and inexcusable. I can't fathom why the ability to adjust resolution and color is absent from the rendering interface, especially when the interface was overhauled to make the animation process easier.

The other current drawback to Playmotion is the manual. While it's certainly



The Wait is Over ...

The addition of A-Max II Plus to ReadySoft's acclaimed series of Macintosh emulators brings powerful new capabilities to your Amiga. A-Max II and A-Max II Plus are hardware and software combinations that, once you supply Macintosh 128K ROMs, run almost all Macintosh productivity software at full speed including Word, Excel, Quark XPress® and Illustrator®. A-Max II Plus is an internal card which may be easily inserted into a slot in your Amiga 2000 or greater series computer. Once installed, A-Max II Plus provides AppleTalk®, serial port, MIDI and disk compatibility with the Macintosh.

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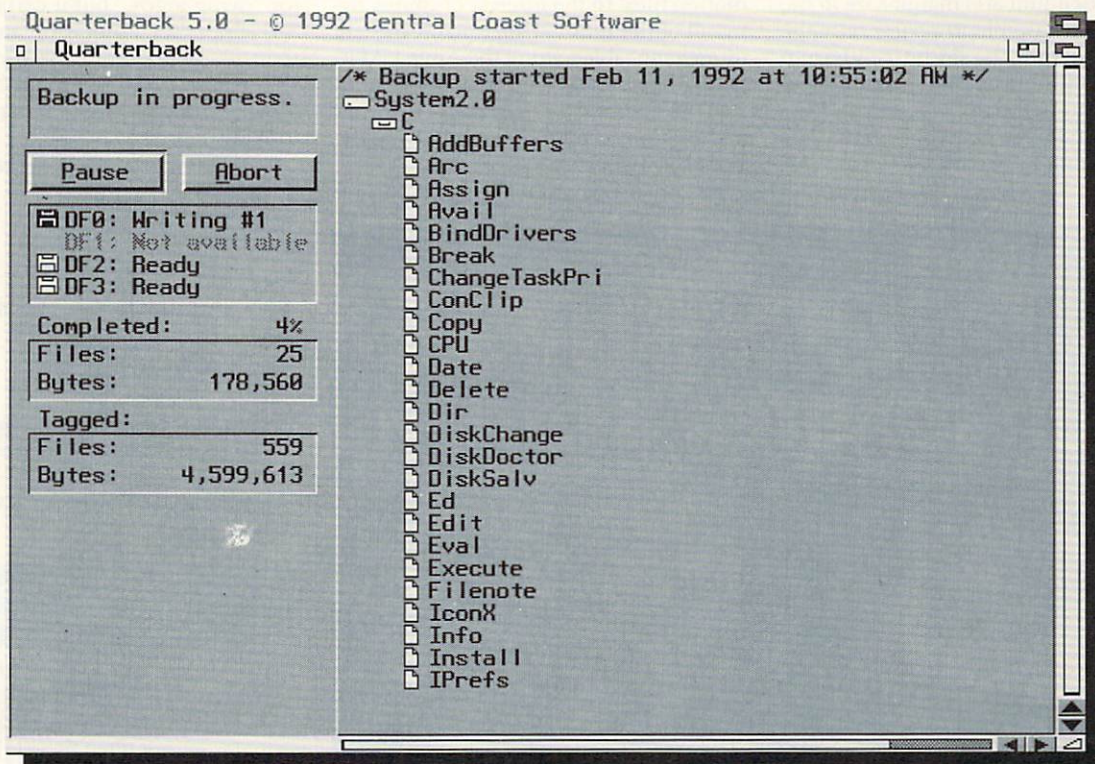
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REVIEWS

well written, it's not for the Amiga version. The program is currently shipping with the manual for Playmation's Windows version. While the interfaces of the two programs are exactly the same, references to Windows are distracting. An Amiga addendum and manual are in the works, but I was able to review only the pages discussing the 24-bit rendering. Also, there should be some more introductory material in the manual, because all of Playmation's new concepts can be overwhelming to beginners.

On the plus side, Playmation comes

with objects and motion files that are not only helpful learning tools, but also useful for incorporating in your own animations. Registered Playmation users can also access a support BBS to pose technical questions and exchange objects and motion files. In the interest of connectivity, all of the files Playmation creates are interchangeable among the Amiga, Mac, and IBM versions. This should allow for a greater supply of third-party objects and motions than many other Amiga 3-D programs have.

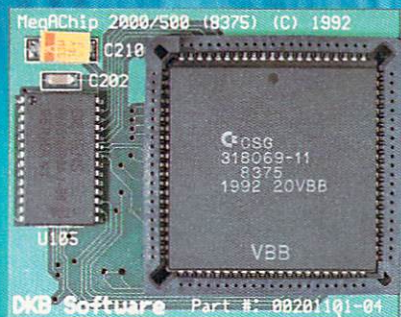
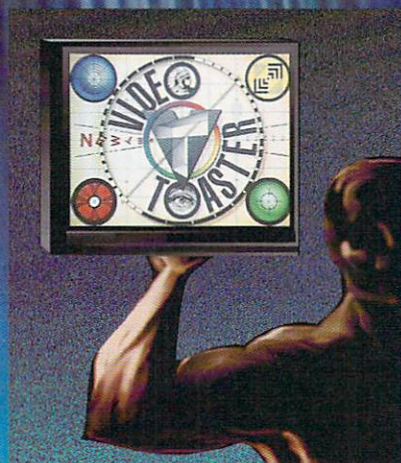
Overall, Playmation is a unique pro-

gram, containing features and abilities not available in any other software package. While the interface is much improved, however, this is still a very complex program that can easily frustrate impatient users. It's not my first choice for "flying logos," but it certainly makes 3-D character animation much easier than its competitors. Bottom line: For spline-based modeling and 3-D character animation, nothing even comes close to Will Vinton's Playmation.

—Dave Thomas

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GIGAMEM

Pre'spect Technics, Inc., \$149.

Hard drive installable.

Not copy protected.

2.0 compatible.

Accelerator compatible (except 68040)

Minimum system: An MMU and mass data-storage device.

Recommended system: An MMU and hard drive.

Simulates RAM for
memory-intensive tasks

One of the my biggest disappointments with Workbench 2.0, 2.1, and even 3.0 is the lack of system support for virtual memory. That oversight has been rectified, at least in part, by a new program called GigaMem.

What exactly is virtual memory? It doesn't involve putting on lots of virtual reality headgear to save a file. Simply put, it's a way of tricking your computer into thinking it has more RAM than it actually does by having it access a storage device, such as a hard drive, rather than go to precious and expensive memory.

GigaMem does what it claims and does it well. All you need is an MMU (Memory Management Unit, such as in the 68030 CPU) and a storage device such as a hard disk or Syquest drive. GigaMem hides in the background, intercepts memory usage of only those programs that you want to use virtual memory, and leaves your other software alone. You even tell GigaMem in what order to allocate memory for each program. For example, Imagemaster (Black Belt Systems) can use RAM first (for speed), while ProWrite (New Horizons) first draws on virtual memory, leaving the real stuff for other programs that might not use virtual memory at all.

THE OLD SWITCHEROO

Installation is fairly straightforward. The 90-page, half-German, half-English ►

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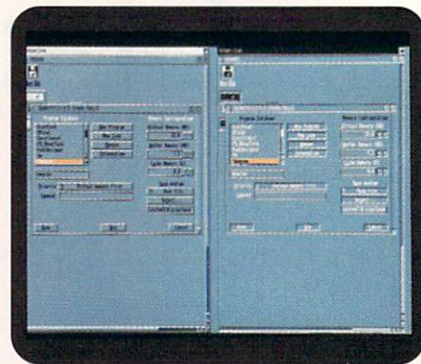
The graphic effects on this page were generated in seconds by Rambrandt Personal, Tecsot's TV Paint and Mercury.

manual is plenty adequate for getting the average user up and running—thanks to Commodore's painless installer program.

There are, in fact, few decisions to make during the entire process. The most important consideration is where to put the swap file. A swap file is the hard-drive location where GigaMem mimics RAM, simulating available memory. GigaMem requires that this swap file not be placed in the same partition as any data saved by a program

using virtual memory. Does that sound confusing? Put another way, assume you are using Imagemaster with GigaMem. When you save an image, it cannot be stored in the same hard-drive partition as the GigaMem swap file. Because of that restriction, I chose to put GigaMem and its associated swap file in the System partition. If you keep programs in one partition and data in another partition, you could place GigaMem with the applications.

Three programs comprise GigaMem:



GigaMem Prefs lets you specify the amount of virtual memory available and when various programs should use it.

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a startup utility (for the WBStartup drawer), GigaMem itself, and GigaMem Prefs (in which you interact with GigaMem and configure its workings). Prefs has an attractive Workbench 2.0 interface, making it easy to select the amount of virtual memory to use—limited, of course, by the hard-disk space you're willing to relinquish to the swap file. Buffer and cache memory entries are dedicated to speeding up the virtual memory, much like a floppy-drive cache. The GigaMem manual recommends ideal settings based on your particular Amiga configuration.

The central focus of GigaMem Prefs is the program database, a listing of programs compatible with GigaMem. It comes preloaded with common programs such as ProWrite, PageStream2 (Soft-Logik), Imagemaster, Digi-Paint (NewTek), and many more. The manual describes how to add other programs to the database, but admits that this can often be a trial-and-error process if the default settings do not work right off. You can configure each program individually to use normal memory first, virtual memory first, or none of either. The database keeps you informed of which programs are currently using virtual memory, as well.

IS IT RAM OR IS IT GIGAMEM?

GigaMem is an effective way to increase your Amiga's usefulness. I found it a little restrictive, however. GigaMem wedges itself in your processor's MMU, making it incompatible with some programming tools and CPU controllers designed to speed up your system. Also, a last minute Read_Me file on the distribution disk warns you not to use Power Packer on your hard drive because of memory management conflicts with GigaMem. Instead, it suggests Imploder. If you already use Power Packer, converting a

Continued on p.78.

.....

This time we pulled out all the stops.

Until now, 3D modeling, rendering and animation was really 2D, enhanced with three viewing perspectives.

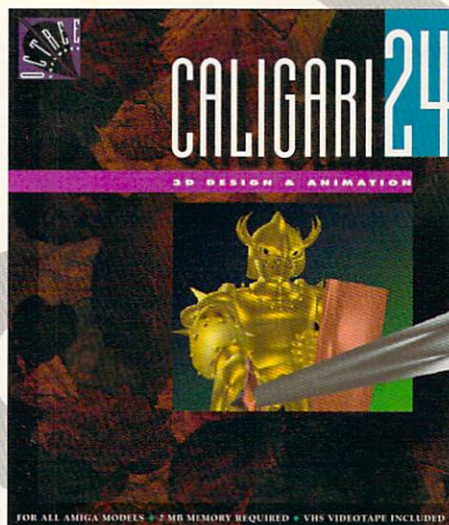
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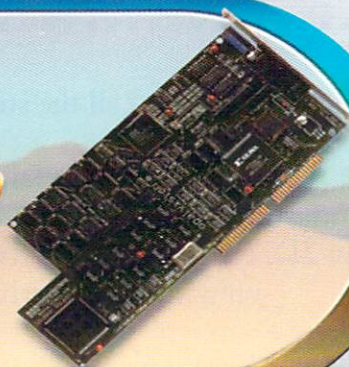
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—Brian Larkman, Amiga Format Magazine, England

"In even its first release, OpalVision is awesome! If you've been sitting on the Amiga's 24-Bit sideline, waiting for the technology to mature, the time to act is now!"

—Tony Gomez, Camcorder Magazine, USA

"OpalVision is exciting for everyone in the Amiga community and will enjoy a long and successful life. Professional quality at this price can't be turned away."

—Gary Fenton, Amiga User International Magazine, England

"OpalVision is an amazing delight. It comes closer to simulating a classical painting environment than any other hardware or software combination I've tried. It's great!"

—Hank Tucker, Producer for Disney TV Animation

"I asked both a traditional artist unfamiliar with computers and a video artist familiar with Amigas and other computers to try OpalPaint. The verdict was unanimous—*brilliant*—and who am I to disagree? The best fun I've had for ages."

—Gary Whiteley, Amiga Shopper, England

OpalVision News Flash!

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Our powerful new animation player lets you run OpalVision animations at rates of up to 60 frames per second. It works in 8, 12, 15, 18 and 24-Bit modes and features selectable screen sizes from 32 x 20 to 768 x 286 pixels. Features an easy Workbench interface, dynamic DMA allocation for best frame rates on slower (68000-based machines), and will play animations directly from a hard drive. Our delta compression feature creates small files and fast playback rates.

Amiga Developers Create OpalVision Software:

These are just a few of the titles that are already available or that will be released very soon:

ASDG - Art Department Professional and Morph Plus

Adspec Programming - Aladdin 4D

Black Belt Systems - ImageMaster

SCALA - MultiMedia 200 and InfoChannel

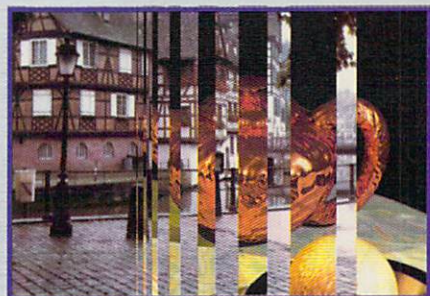
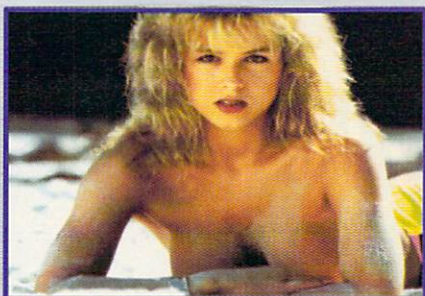
RGB Computer & Video - AmiLink Video Editing Products

Amazing Computers - Transporter single frame recording software

Texture City - Texture City 24-bit image libraries

Progressive Peripherals and Software - 3D Professional

OpalVision also works with A4000 and AA Chipset!



The OpalVision Main Board

- An internal card which operates in any Amiga computer with a video slot.
- A true 24-bit frame buffer and display device with 16.8 million colors available for every pixel.
- Uncompromised, 24-bit higher-than-broadcast-quality, crystal-clear images.
- Standard Amiga graphics and animations can appear in front of or behind OpalVision images on a pixel-by-pixel basis.
- Performs double-buffered 24-bit and 15-bit animation in medium and low resolution modes and 8-bit double-buffered animation in all resolutions.
- VLSI graphics coprocessor enables resolution changes, stencil modes, a host of transition effects and smooth scrolling between screens.
- "Palette-Mapped" design updates screen colors in real-time. Fade pictures in and out and change their palettes on the fly.
- Double buffered full 24-bit, 15-bit and 8-bit true color modes, 24-bit and 8-bit palette-mapped display modes, Dual Playfield and Overlay Priority stencil modes.
- Priority mask definition specifies foreground/background areas in 24-bit images.
- Microcode graphics processor for system control, priority switching, hardware scrolling and panning.
- 20ns video switch to freely mix Amiga and OpalVision graphics.
- Expansion connectors for available Framegrabber/Genlock and Scan-Rate Converter hardware modules.
- Expansion socket for the "Roaster Chip," a live video special effects processor.
- Automatically self-configures for NTSC or PAL operation.
- 24-bit RGB output with video bandwidth >7 MHz. Equipped with 1.5 MB of display RAM.

OpalVision Software

Every OpalVision Main Board includes a full range of software to let you start creating graphics, animations and presentations immediately:

OpalPaint

Everyone is excited about OpalPaint. In fact, nearly everyone who's spent any time using it says it's the best paint program on the Amiga. And with good reason. It's Fast. Real-time. Full 24-Bit. OpalPaint gives you complete control over OpalVision's 16.8 million color palette. Includes a full-range of drawing tools and an expandable library of image-processing modes with adjustable parameters, complete texture-mapping capabilities, transparency and color gradients, multiple work modes, nozzle brushes, pre-defined palettes and many other comprehensive tools. Unique and powerful features like real-world "Artist's tools" and paper types, multiple stencil types, virtual memory support and compatibility with the pressure-sensitive Wacom drawing tablet provide a level of support for artistic creativity never before available on the Amiga.

Also included are **OpalAnimMATE** (see News Flash on previous page), **Opal Presents!**, an icon-driven presentation program, **OpalVision Hot Key**, a powerful and very useful image display utility and the world's first 24-Bit game, **King of Karate**.

The OpalVision Main Board is the core of a complete video system. Enhancement Modules are on the way which add exceptional graphic and video features to the OpalVision Main Board. Create a complete video production studio by adding some or all of the OpalVision Expansion modules. The modules connect directly to the Main Board without tying up Amiga slots.

Frame Grabber + Genlock Module

24-Bit real-time framegrabbing and better-than-broadcast-quality genlocking with S-Video, RGB and composite inputs and outputs. Real-Time video effects, transitions and color processing.

Quad-input Production Switcher

Complete video switching capabilities. Includes four S-VHS, four composite and one RGB input. Three outputs: Composite, S-Video and RGB. Combine two live video sources, 24-Bit OpalVision and Amiga-generated graphics.

OpalVision Scan-Rate Converter

Perfect for desktop publishing and graphic arts applications. Generates flicker-free 24-Bit and Amiga graphics. Can also be used as a separate 24-Bit frame store for multimedia applications.

OpalVision Roaster Chip

Amazing, complex Digital Video Effects. Real-time processing of live video. "Picture-in-Picture" capability. Includes pre-made effects and provides for the creation of custom effects.

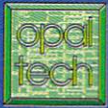
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Norway	CAPELLA AS Oslo Ph: (47)220-0806 Fax: (47)220-0805
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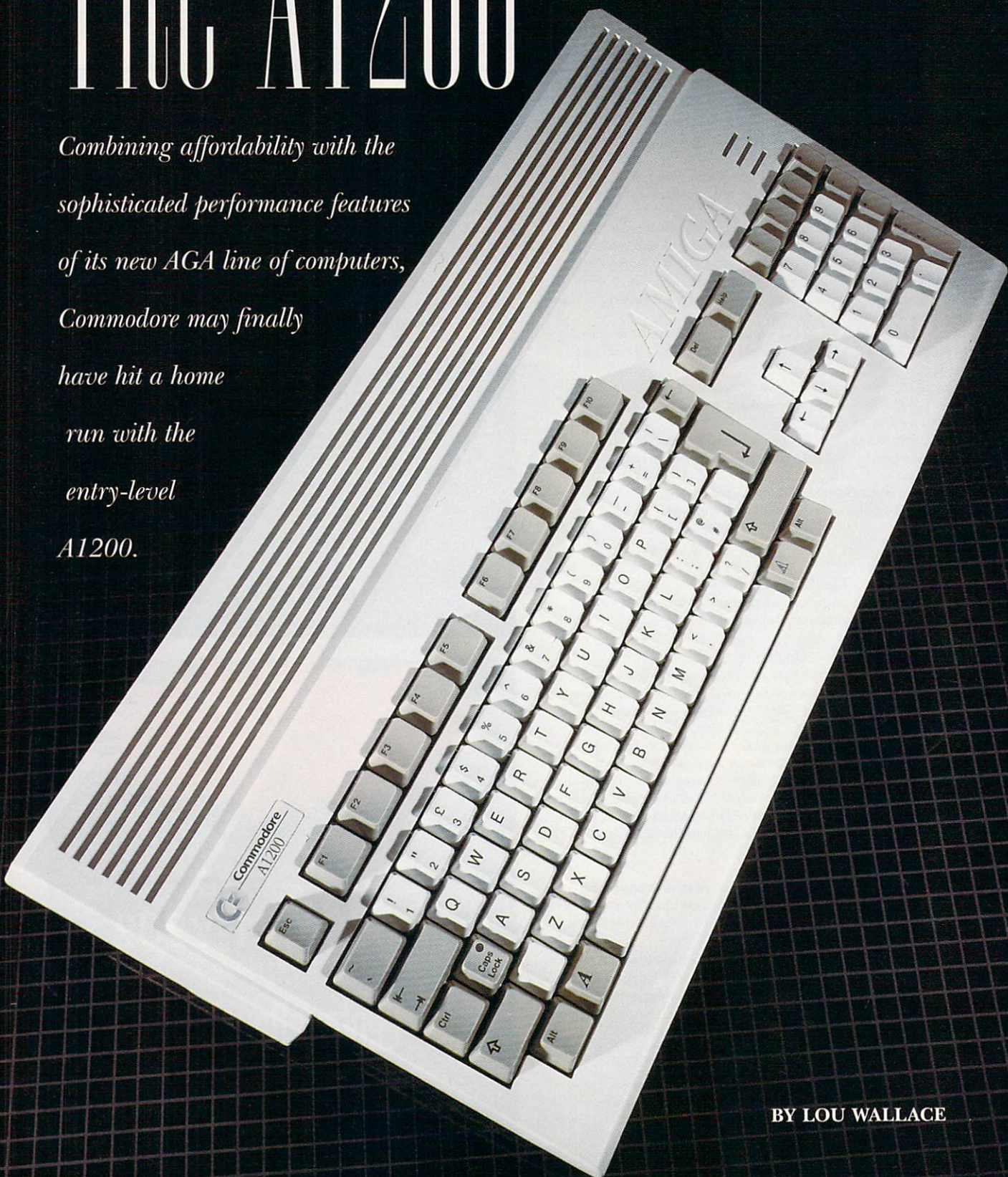
*Centaur reserves the right to limit this offer to specific video boards and/or quantities which will be accepted as trade-ins at Centaur's discretion. Centaur may alter or change the terms and conditions of this offer at any time at its sole discretion. Please call Centaur for complete details.

OpalVision, OpalPaint, Opal Presents and OpalVision Roaster Chip are trademarks of Opal Technology, Ltd. OpalAnimMATE and King of Karate are trademarks of Centaur Development, Inc. Other brands and product names are trademarks or registered trademarks of their respective holders.

The A1200

A NEW MAINSTREAM AMIGA?

Combining affordability with the sophisticated performance features of its new AGA line of computers, Commodore may finally have hit a home run with the entry-level A1200.



BY LOU WALLACE

ONLY A FEW months ago, Commodore introduced the high-end version of its next-generation line of new machines. Billed as the "multimedia computer," the A4000—priced at \$3699—gave the sagging Amiga a powerful technological boost in its battle with ever more powerful PCs and Macs.

Now the "New Line" has taken a bold step downwards to a price point that could propel CBM and the Amiga into the mainstream of desktop computing. Unveiled at the recent COMDEX show in Las Vegas, Commodore's new entry-level computer, the A1200, sports a highly attractive list price of \$699. The new machine, which replaces the older A500 computer, offers users a surprisingly gaudy array of standard features, as well as possibilities for future expansion.

CHOCK FULL O' FEATURES

The A1200 is a 14 MHz 68020 system that incorporates Commodore's new AGA (Advanced Graphic Architecture) chip set. The base machine comes with 2MB of RAM (all chip), one 880K floppy, and a PCMCIA slot. (This is the same interface found on the A600 and CDTV. It appears this is becoming a standard on all but high-end Amiga computers.) The operating system is the new AmigaDOS 3.0 introduced with the A4000. (For more on both 3.0 and the A4000, see the cover story, Nov. '92, p. 30.)

Further expansion is possible using a CPU expansion slot found on the bottom of the A1200 (in the same location as for the A512 RAM card in the A500). This slot supports a 150-pin local bus-expansion adapter that can be used to add more RAM, a coprocessor, a CPU accelerator, or even a SCSI interface. An additional 8MB of RAM can be added, bringing the total to 10MB.

Also included with the A1200 is an internal IDE hard-disk interface. You can purchase an optional 2.5-inch IDE hard drive to augment the standard floppy-based system.

Unlike the A600, the A1200 comes complete with a calculator keypad on the keyboard—which makes the machine a bit wider than the A600. The A1200 is equipped with all the standard Amiga ports for mouse, joystick, external floppies, serial, parallel, and video (RGBA, VGA, SVGA, composite).

SOUL OF THE NEW MACHINE

First and foremost, the A1200 makes use of the second-generation Amiga chip set. The AGA chips are the heart and soul of the new line of Amiga computers. With AGA, the Amiga sports a palette with true 24-bit color capability, meaning it can make use of more than 16 million colors. In terms of actual display, the number of colors that can be displayed at any one time now ranges from as few as two to more than 256,000. Using up to eight bitplanes, screens of up to 256 colors are available in normal display modes; in the new HAM8 mode, these same eight bitplanes can generate 256,000-color displays that rival true 24-bit displays.

The range of screen sizes that are possible with AGA also far exceeds that of earlier Amiga chips. In addition to the old sizes (320×200 to 640×400), you can now create screens of 800×600, 640×960, 1280×400, or 1312×512, all of which can use up to the full eight bitplanes of color.

What is most significant about the new AGA Amiga line is that the graphics are standard across the line. This means the A1200 has all the graphics power of the more powerful A4000 computer. (Look for an in-depth examination of Commodore's new machines, as well as AmigaDOS 3.0, in the March issue.)

FIREPOWER IN THE BELLY

The Amiga 1000 released in 1985 used the 7 Mhz 68000 CPU from Motorola. This same processor was used in the A2000, A500, and A600. With the release of the A1200, Commodore has indicated the day of the 68000 is over. The A1200 comes standard with a 14 MHz 68EC020 processor. This 32-bit chip operates at several times the speed of the A500, a speed increase based partially on the higher clock rate (14 MHz vs. 7 MHz) but also on basic design improvements in the 68020 over the 68000.

This extra speed is more than welcome when using the new display modes. Moving eight-bitplane graphics around is not a job for lightweights—it takes real computer power. This is especially important in standard Amiga applications like animation, video, multimedia, and, of course, games.

Because the A1200 is now the new entry-level Amiga, game development is likely to become important once more. Many game companies have avoided porting their VGA-style games to the Amiga because of the higher color and pixel resolutions used in those VGA games. With these obstacles eliminated by the A1200, expect to see a lot of games ported. Even more importantly, original games developed specifically for AGA are likely to take full advantage of the new features. I believe such games may be what many Amiga gamers have been awaiting for a long time.

Beyond that, the A1200 is up to just about any computing task. The 68020 is a good compromise for a CPU, allowing more computer speed without raising the price. For any standard productivity task—word processing, spreadsheets, and databases—the A1200 will more than serve. Graphics, animation, and music applications will be ideally suited to this machine. Videographers will find the A1200 attractive as a low-cost, high-quality video titler. Also, at the price, it is likely to be used in such multimedia applications as interactive kiosks. And, of course, just add some more memory, a math chip, or a faster processor, and it will hold its own against any Amiga available.

I'LL TAKE ONE!

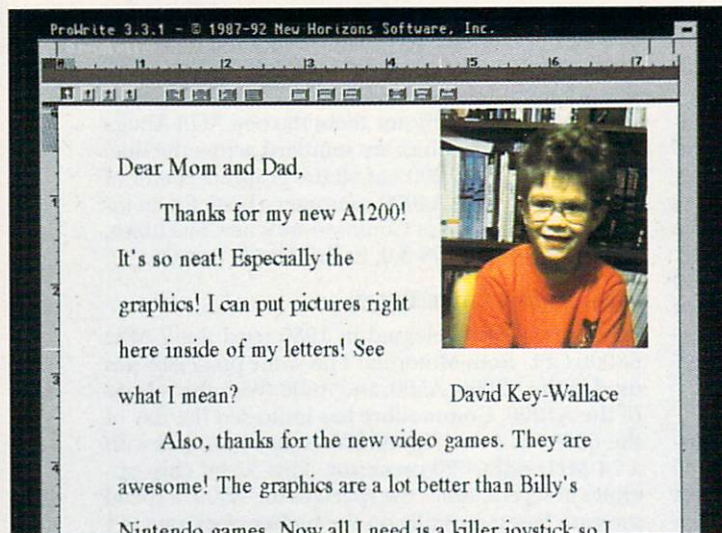
So what do I think? I'm impressed. The A1200 is powerful, affordable, and expandable. It seems to be a proper hybrid of the A500's low cost, the A4000's ►

graphics, and the A2500's speed. And Commodore has learned some important lessons, especially from the A500. That machine, originally designed as a nearly

nonexpandable unit, developed over time as an extremely expandable base machine owing to the innovative strategies of third-party developers. With its 150-pin expansion slot, PCMCIA slot, and built-in IDE interface, the A1200 is all ready to upgrade. I think vendors will have a lot of fun developing add-on products for the A1200.

Commodore has spent the last few years wishing for a computer that could emulate the success of the C-64. While I don't expect the company to sell ten million A1200s, I do think this is the best entry-level machine it has come up with since then. Let's see what happens next! ■

ProWrite 3.3 supports the A1200's new AGA color and screen resolutions, as in the case of this 800x600 display with a 256-color image incorporated into the text.



TECHNICAL SPECIFICATIONS

CPU

- 14.32 MHz 68EC020 NTSC
- 32-bit data path
- 24-bit address space
- Optional 68881/68882 math coprocessor

Memory and Expansion

- Up to 2MB 32-bit chip RAM
- Optional battery-backed real-time clock
- Internal 150-pin local bus connector
- Supports PCMCIA-standard 2.0 memory and I/O cards
- Expandable to 10MB RAM

Software

- 512K 32-bit ROM, expandable to 2MB
- Includes PCMCIA code
- AmigaDOS 3.0
- Supports progRAMmable resolutions

- Supports outline fonts
- Localized for multiple languages/countries
- CrossDOS MS-DOS file transfer utility

Disk Drives

- Built-in slimline 3 1/2-inch 880K disk drive
- Optional 2 1/2-inch IDE hard disk drive

Interfaces

- Keyboard
- Mouse/Joystick/Lightpen/Tablet ports (2)
- Serial (RS-232)
- Parallel (Centronics)
- Video (RGB Analog, VGA, SVGA)
- Color Composite and RF Modulated Video
- Right and Left stereo audio
- External floppy-disk drive port

- Internal IDE port
- PCMCIA 2.0 Standard Slot
- External expansion port

CPU Expansion Bus

- 150-pin Local Bus edge connector provides:
- High-speed 32-bit RAM expansion
 - Coprocessor expansion
 - CPU accelerators

Sound

- 8-bit audio with four voices configured as two stereo channels
- Built-in sound buffer up to 800K nominal
- 6-bit volume

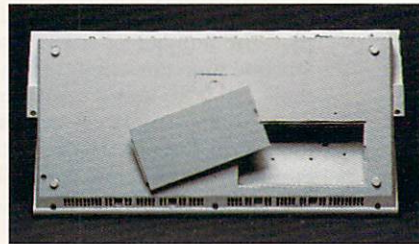
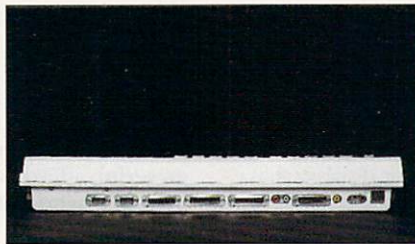
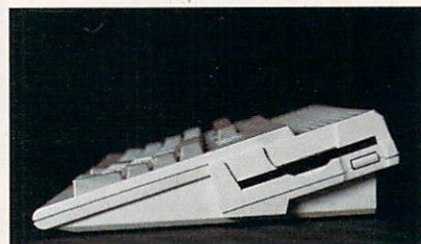
Graphic Modes

- AGA custom chip set produces resolutions from 320x200 to 1280x400 (more with overscan)

- NTSC and PAL video resolutions
- Color palette of 16.8 million colors
- 2 to 256,000 user-definable colors displayable on screen

Video Display Output

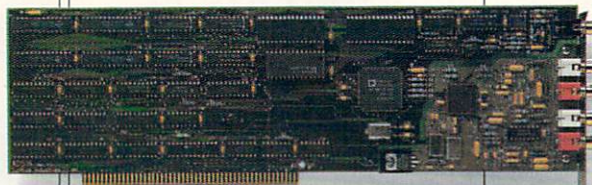
- Works with RGB analog, VGA, or Multiscan monitors (not all modes supported with nonmultiscan monitors)
- Horizontal scan rates 15 KHz–31 KHz
- Vertical scan rates 50 Hz–72 Hz
- NTSC Color composite output
- RF output for standard TV



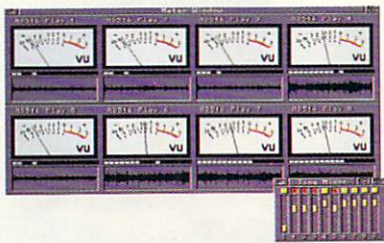
The Amiga 1200 sports an 880K floppy drive on the right side (left), all the standard Amiga expansion ports on the rear panel (center), a PCMCIA slot on the left side (not pictured), and a CPU expansion slot on the underside (right).

16 Bit Desktop Audio

Professional Digital Sound for Your Video, Music, and Radio Productions



Finally, true CD quality 16 bit audio is available for your Amiga! SunRize's new AD516 gives you eight tracks, plus a time code reader and a DSP chip. Included with the AD516 is Studio 16™ version 2.0. This new release of our popular 16 bit editing software puts a complete sound studio on your desk!



AD516

The AD516 hardware provides stereo in/out connectors, plus a SMPTE in. Just plug your VTR, CD player, radio, tape deck, or other audio source directly in. Then record in stereo, direct to hard disk, with 16 bits at sampling rates up to 48,000 samples per second. Plus, the AD516's efficient design allows 8 track playback direct from hard disk. The AD516 can synchronize and chase SMPTE time code at 24, 25, 29.97, and 30 fps (drop or non-drop frame). Designed to exceptional audio standards, the AD516 offers 15Hz to 22KHz frequency response and 85dB dynamic range.

Video Production

The Video Toaster goes a long way towards solving your video problems. But what about sound? Do you want to do ADR or voice-overs? Do you need to synchronize background music with your productions? How do you add footsteps, door knocks, and other sound effects to your video or animation? Do you need to fade, cross fade, or eliminate sections of audio? Can you edit your audio, or are you stuck with the first take?

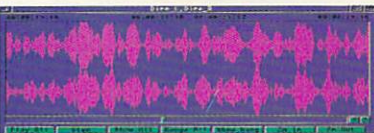
Studio 16 solves all these problems by turning your Amiga into a complete sound studio. With Studio 16's cue list and SMPTE support you can lock sounds frame accurately with your video. Audio triggers reliably, at the same spot, every time. Or you can slip your audio effects, trying them at different spots. And since Studio 16 plays directly off hard disk, the number of sounds you can trigger is unlimited.

Mixer and Meters

Each of Studio 16's eight tracks can be metered and mixed. Unlike two track systems, Studio 16 can combine multiple tracks with no generation loss. And it can record two tracks while playing up to eight!

Waveform Editor

The Studio 16 sound editor graphs the audio waveform and allows you to cut, copy, and paste audio. Up to eight samples



can be edited per window. And edits can be non-destructive or permanent. Zoom, scale, fade, reverse, echo, normalize, loop FFT, resample, and many other functions are available. Named regions can be defined and used in the cue list or transport modules.



DSP Supercharger

The AD516 includes a special sound coprocessor - the advanced 2105 DSP. The DSP allows Studio 16 to handle those eight tracks while performing real time mixing. The DSP can also do high quality 16 bit effects such as echo, flange, delay and chorus.

Low Prices, High Performance

Studio 16 2.0 comes with either the AD516 (16 bit, 8 track, stereo, \$1495 list) or the AD1012 (12 bit, 4 track, mono, \$595 list). Also available is the DD524 digital I/O card for direct interface to DAT. Call today for a free Studio 16 information packet. Tel: (408)374-4962. Fax: (408)374-4963.



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Increase Your

WORD POWER

We're not talking vocabulary here, but word processing. We're also talking some serious advice—answers and solutions from experts on the most popular programs. And besides showing you how to pack more power into every key-punch, we'll reveal which packages have the most important features.

Even if you've been using your word processor for months—or even years—there are probably plenty of things you still don't know about it. Useful things: time-saving shortcuts, dilemma-solving solutions. Not because you haven't read the manual (oh, no!), but because some useful capabilities are just plain obscure.

We scouted around to determine which are the most widely-used Amiga word processors. Then we asked a group of experts, including program authors and tech-support providers, to share their insights on the particular program they know so well. The tips and techniques they offered us—presented in Q&A format according to alphabetical order of program name—are sure to increase your word power.

So that you know the powers of all the word-processing software now on the market, we also worked up a chart. Entitled "The Powers of the Words," it lists the most sought-after document-processing features, and tells you which of the current programs implement them. ►

There is a lot of good advice here, and we hope you find this collection interesting and useful.

Quick Guide

Tips for:

excellence! by Andrew Apold, p. 36

Final Copy by Jeff James, p. 38

KindWords3 & WordsWorth by Michael Rivera, p. 38

ProWrite by James Bayless, p. 40

TransWrite by Chris Zamara and Nick Sullivan, p. 42

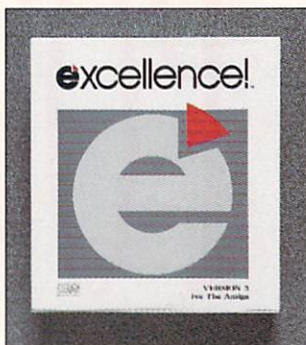
WordPerfect by Liz Tanner and Mike Madsen, p. 46

Comparison Chart, p. 44

excellence!

Micro-Systems
Software

Micro-Systems' excellence! has been around for nearly five years and is now in version 3.0. The answers to these common questions about the program provide solutions and shortcuts.



Q: How can I quickly access foreign characters and symbols?

A: You cannot use normal Alt key combinations with excellence!, and accessing characters via the Insert Literal requester can be slow when typing. To access one of these characters quickly, insert it as usual, then place it in the glossary and assign it to a key combination; you could assign a character to Alt-C, for example.

Q: What are the function keys used for?

A: The function keys are left unassigned so you can customize them to perform whichever glossary functions you wish. If you are accustomed to pressing Shift-F7 to print, for example, you can make a glossary macro ({print}) and assign it to that key combination.

Q: Can I change screen modes without exiting the program?

A: Yes, but not if there is a window open. First close all document windows, then bring up the Preferences menu, and change screen modes. The changes will take place as soon as you exit Preferences.

Q: What fonts can excellence! use for screen displays?

A: Excellence! uses a font named Helv whenever it can for menus and requesters. Helv comes in two sizes, 8 and 13. The 8-point size is used on non-interlaced displays, while the 13-point face is used with interlaced or productivity screens. Where it cannot use a proportional font (such as menus under AmigaDOS 1.3), excellence! uses a similar monospaced font named Sys. If the program tries to use these fonts and they are not present on the system, it will use Topaz 8 instead.

Q: Why don't some fonts appear in the Font requester?

A: Some fonts are "marked" as being bold or italic.

If a bold font has no plain counterpart, it will not show up in the Font menu unless the text style bold is selected. If a font you think should be present in the Font requester is not, select Bold (or Italic) and bring up the requester again to see if it shows up.

With some typefaces, plain, bold, and italic versions are separate files. If you select CGTimes, for example, you get the standard delay while it loads the font. If you then select the Bold or Italic button, you normally get another delay, as if the program were loading another outline font. In fact, this is exactly what it is doing. You will not experience this delay if you have used the Fountain program (provided with AmigaDOS 2.0) to create a bitmapped version of the font.

To see the difference, use Fountain to create a bitmapped version of CGTimes at a large size, such as 50. Then, in excellence!, select CGTimes at 50. Type some text as plain, some in bold, and some in italics. Now select CGTimes at a similar size that has no bitmapped version, such as 48. Repeat the procedure. You will notice that the bitmapped version (size 50) italicizes and bolds the plain font, while the outline version uses separately drawn italic and bold fonts.

Q: On some machines, black PostScript text prints as a grayscale or even white. Why, and how can I correct this?

A: Make sure that the third color in your palette is black. If it is not, swap the positions of the colors so that black is third. The display will remap correctly once you exit Preferences.

Q: Is it possible to improve the print resolution of the Graphic Print mode?

A: You can increase the horizontal resolution by setting the pitch higher. Using a pitch of 15 squeezes 50% more into the same width as a pitch of 10 would. This works best with fonts meant to be used at that pitch, such as bitmapped representations of the PostScript fonts (PTimes, PCourier, PHelvetica, and PSymbol) included with excellence!.

Q: Can I get additional font sizes for the PostScript fonts?

A: Workbench 2.0 lets you use the PostScript faces at any point size from 7 to 99. Simply select the name of the typeface and enter the size you want. The bitmapped representations are scaled on screen, and may look blocky, but the printouts will be sharp, as the PostScript printer will scale its own fonts.

Q: How can I cause the Font directory to reload?

A: Hold down the Shift key when you click on the Font button.

Q: How can I change the way a word hyphenates?

A: To change a word's hyphenation rules, bring up the SpellMate utility by double-clicking on the User Dictionary icon (located in the DocTools drawer). Enter the word you wish to rehyphenate into the SpellMate program, using a forward slash character at locations where you want the word to be able to split. For example, to have the word AmigaDOS split as Amiga-DOS at line breaks, enter it in as Amiga/DOS and then save the change. It will split accordingly in the future.

Q: How can I highlight text from an ARExx script?

A: You can do this via the Type command. To high- ➤

BRILLIANCE™

PROFESSIONAL PAINT & ANIMATION

IT HAD TO HAPPEN...

We put the creators of Deluxe Paint ST™, Deluxe PhotoLab™, and DCTV Paint™ together with the goal of developing the most awesome paint and animation software ever for the Amiga. After many man-years of inspired design and programming, it is simply...

BRILLIANCE!

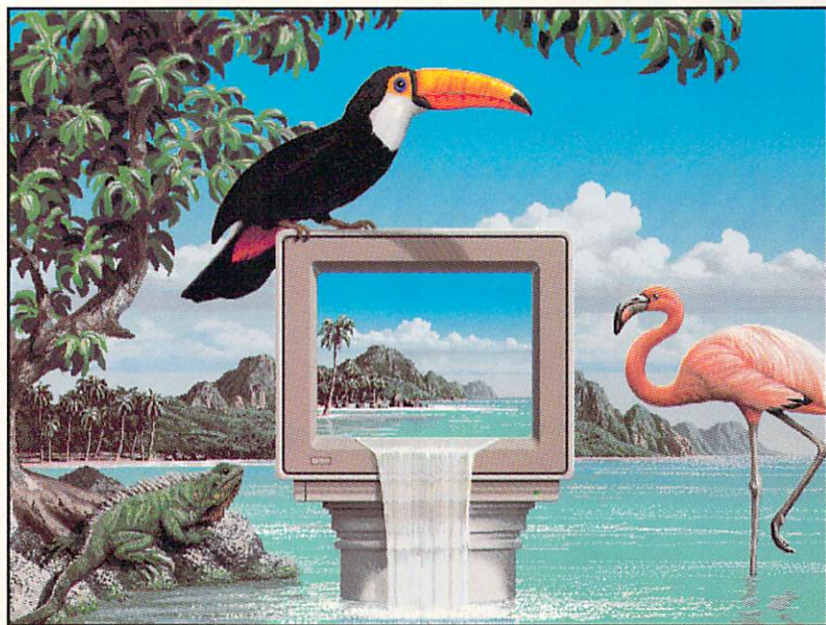
IT'S AMAZING...

By far the best paint program ever created for the Amiga. Paint and animation features you wish you had before are here now. You can paint and animate in virtually every Amiga graphics mode including all of the new A4000 modes! Brilliance also has a unique true color mode allowing you to create and modify full fidelity 24 bit pictures. Your Amiga has never shined as bright as it will with **BRILLIANCE**.



IT'S POWERFUL...

Multiple levels of UNDO allow you to experiment without fear. Written in assembly language for the quickest response, smallest program size and the most sophisticated features.



Artwork by Jim Sachs. Created at 640x480 in 256 colors on an Amiga 4000.

A rich set of drawing modes will unleash your full creative potential. Multiple paint and animation buffers can be worked on at once, limited only by memory. The more memory you have, the better Brilliance becomes. Power, features, sophistication, ease of use, Brilliance has it all.

IT'S EASY...

The user interface was designed to put YOU in control, not the program. Quickly and precisely control all paint and animation features with the dynamic menuing system. It gets out of your way at the press of a button. A help window assists in identifying controls as well as current modes. The stacking menu bars can be user configured and recalled with function keys. You can even save your own configurations.

IT'S BRILLIANCE...

Once and for all, in one easy to use package, the total paint and animation system for the Amiga.

Best of all, it's from Digital Creations.

Works with all Amiga models.

Minimum memory requirement: 1 Meg.

Graphics modes supported:

Register based 2, 4, 8, 16, 32, or 64EHB Colors.
6 bit HAM, 12 bit true color, 24 bit true color.

With the new A4000:

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Circle 63 on Reader Service card.

light the word the cursor is on, use the command:

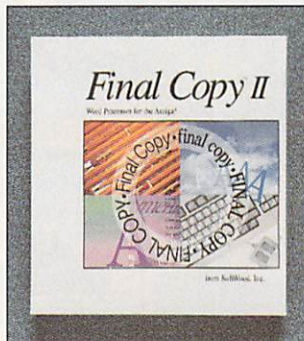
Type '{alt}{left}{shift}{alt}{right}'

Generally, if an effect can be achieved manually with the Shift, Ctrl, or Alt keys and a cursor (arrow) key, it also can be achieved with the Type command.

Andrew Apold has been using Amigas since 1987. He has been Micro-Systems Software's excellence! tech-support representative for more than one year.

Final Copy SoftWood

SoftWood recently released Final Copy II, an upgrade to its popular Final Copy word processor. The new release incorporates features found in SoftWood's older graphics word processor, PenPal. The following tips have been tested with both incarnations of Final Copy.



Q: *I'm creating a list of items in Final Copy. I want to mark each of those items with bullets, but Final Copy doesn't seem to have the ability to do so. What can I do?*

A: Bullets (•) are special typographical characters commonly used to highlight listed items. Both Final Copy I & II support bullets and other special characters, which you can access by holding down a sequence of keys. For bullets, simply hold down both the Ctrl and Alt keys while simultaneously pressing the 8 key on your keyboard (not the keypad). Here's a list of some of those special characters:

- = Ctrl-Alt-8
- ¢ = Ctrl-Alt-4
- << = Ctrl-Alt-9
- >> = Ctrl-Alt-0

Q: *I have just finished typing a large document in Final Copy. All of my sentences are followed by a single space, and I need to add another space to the end of all my sentences. Short of manually editing the document, is there an easy way to add those extra spaces?*

A: Spaces are treated just like other characters in Final Copy. Using the Find and Replace commands in the Extra menu, you can accomplish your task: Simply enter a period and one space (without pressing Return) as the search string, and then enter a period followed by two spaces (again without pressing Return) in the replace string.

Q: *Can I use standard Amiga fonts with Final Copy?*

A: Unfortunately, neither Final Copy I nor II support standard Amiga fonts; you are limited to using the fonts included with the program or found in SoftWood's SoftFaces add-on packages. That does not mean you cannot import fonts as IFF graphics, however. Using a paint program such as DeluxePaint IV (Electronic Arts), set the screen resolution to match your Final Copy document (commonly 640x200 or 640x400 resolution), choose your font style and create

your text. Save that text as an IFF brush, then import the text into Final Copy using the Insert IFF-ILBM option in the Graphics menu. Keep in mind that this procedure works best with small chunks of text (such as headlines and pull quotes), and that your imported graphics will be treated as any IFF graphic, lacking the smooth output of Final Copy's standard outline fonts.

On a related note, Final Copy I users can emulate some of the drawing tools found in Final Copy II by using their favorite paint programs. Perfectly vertical and horizontal lines will import well as graphics from a paint program into Final Copy I, allowing users to dress up documents with the visual accents, page breaks and other benefits that well-placed lines can provide. Remember, however, that Final Copy II's drawing tools create structured graphics, which output much better than the standard bitmap images that most Amiga paint programs create.

Q: *I use Final Copy with a dot-matrix printer. My printouts sometimes appear smudged, as if someone had rubbed a finger across the lines of text. What's going on?*

A: Customizing the print density settings in Final Copy's Print requester can help. Dialing down the density results in the print head spending less time going over each line of text, with a reduced chance of smudging. However, a reduction in density often means a reduction in print quality, so you may want to tinker with the settings until you find a happy medium.

Smudging can also result when the print head of your printer is too close to the paper, causing it to drag lightly as it moves. This is particularly likely when using thick paper stock, envelopes, or mailing labels. Many dot-matrix printers allow you to adjust the distance between the print head and the print material; check your printer documentation for details.

Finally, your printer ribbon could be overly or unevenly inked. Fresh ribbons are often too saturated with ink, and while new ribbons usually have an even distribution of ink, re-inked ribbons may have clumps. Using a drier or slightly worn ribbon may produce crisper output.

Jeff James, a frequent contributor to AmigaWorld, is a Technical Journalism major at Colorado State University. He's been using Final Copy, one of his two favorite word processors, since it was released.

KindWords3

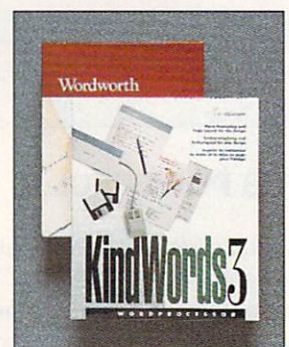
The Disc Company

WordsWorth

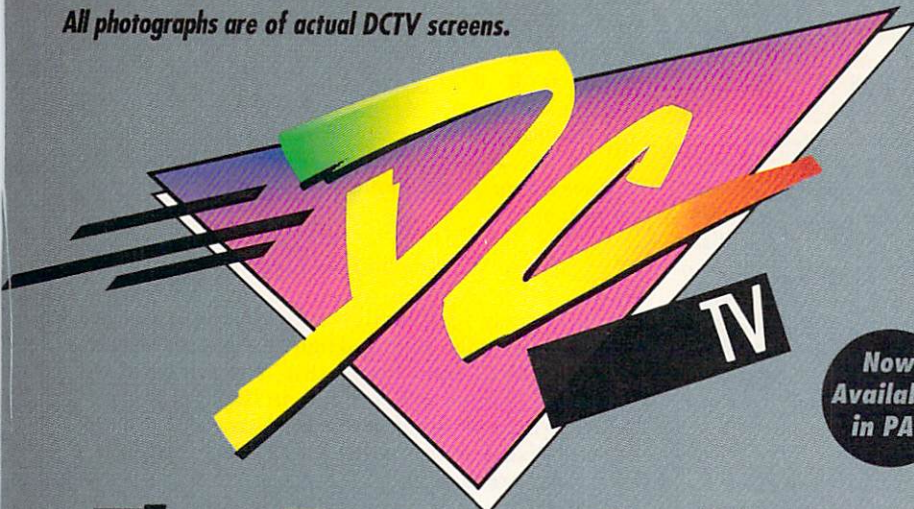
Digita International

KindWords3 and WordsWorth are actually two versions of the same program, developed in the UK by Digita. KindWords has been available for several years through The Disc Company in California. WordsWorth, on the other hand, has shown up just recently in the US through American Software Distributors.

The following tips work with both packages, even though we use only the name KindWords. ►



All photographs are of actual DCTV screens.



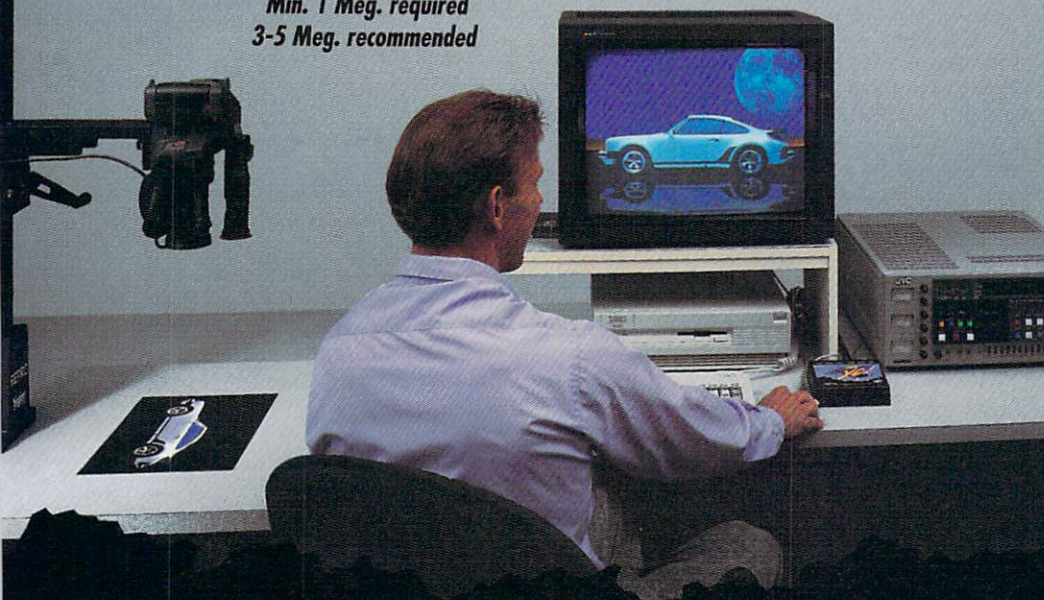
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Circle 16 on Reader Service card.

Q: The Install On Floppy Disk option in the Installer on KindWords' Extras disk does not seem to work. What's wrong?

A: When installing KindWords onto a floppy with the Installer utility, you will be asked to insert the Extras 1.3 (Extras 2.0 if on Workbench 2.0) and Extras disks at different times. A common mistake is to get the two disks confused. Extras 1.3 and Extras 2.0 refer to your Amiga Operating System disks—for release 1.3 and 2.0, respectively. On the other hand, Extras (without a suffix) refers to the one from the KindWords3 package. Inserting the wrong disk during installation may cause the process to fail.

Q: What kinds of fonts can I use with KindWords3?

A: KindWords3 can use any standard Amiga font, including ColorFonts. Most of the fonts that come in the KindWords3 package are supplied on the Extras disk. If you are working from floppy, ideally you will want to assign the fonts drawer to Extras:fonts. Doing this allows you to print using KindWords' UltraPrint High or Super modes, which produce great-looking fonts on any Amiga-compatible dot-matrix printer. (It is important to note that this fonts: assignment points to the new drawer selected, and that this will affect other programs that use fonts.)

You can select ColorFonts from KindWords' Typeface requester as you do normal Amiga fonts. When you do, a requester appears asking you if you wish to use the ColorFont's own palette on screen. Please note that while Workbench 2.0 uses ColorFonts directly, Workbench 1.3 requires a special program to be run first. This program is supplied with several Amiga packages, including DeluxePaint.

If you buy additional fonts and want to use them with KindWords3, follow this procedure to copy them into the fonts drawer:

From the Shell or CLI, use the COPY command to place your new fonts into the fonts drawer on your Extras (if you are working from floppy) or hard disk. For example, if all the files are stored in a drawer called NewFonts, type "COPY df0:NewFonts fonts:all." If not, copy the individual font files by typing "COPY df0:FontName fonts:" where FontName is the name of a specific drawer of font sizes. Then type "COPY df0:FontName.font fonts:" to duplicate the font definition. If you wish, use FixFonts (in the Workbench's System drawer) to reorganize them in the drawer.

Q: I don't have a hard drive, and I get tired of swapping my data and Extras disks. Any suggestions?

A: Floppy users using the fonts drawer on the KindWords3 Extras disk may find it easy to save documents onto Extras because this reduces swapping. Making a copy of Extras and then deleting the documents drawer and Installer utility frees up space for documents. (Be sure to use a copy, though—do not delete files from the original!)

Q: When I'm typing with a small font and then change to a larger one, the screen shows only the bottom half of the larger characters. What's happening?

A: Make sure the Line Spacing setting is on Auto Single. This will automatically adjust the line spacing according to the current font size.

Q: How come KindWords3 does not save printer settings

when I use the Save button in the Print Document requester?

A: To save printer settings as default settings select the Save button in the Preferences requester from the Extras menu.

Q: Why won't KindWords3 print in UltraPrint High or Super modes?

A: Most likely, KindWords3 cannot locate the larger font sizes needed to print in High or Super modes. If you are working from floppy disk, you will need to change the current font directory in the Typeface requester to the fonts directory on the Extras disk. To do this type "Extras:fonts" in the Drawer string gadget in the Typeface requester.

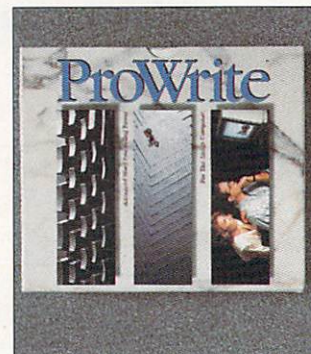
Q: When I change a value in any of the requesters—for example the Print Pages From...To...option in the Print Document requester—the new settings are ignored. Why?

A: Whenever you enter a new value in any of the numeric gadgets in any of the requesters, be sure to press the Return key. Otherwise, KindWords will not recognize the change.

Mike Rivera provides technical and marketing support for KindWords3 at The Disc Company.

ProWrite New Horizons Software

Since the first version was released in 1987, ProWrite has had numerous enhancements. As ProWrite's power has evolved, so has its complexity. While these tips are primarily aimed at owners of ProWrite 3.3, many apply to version 3.2 as well.



Q: I know that ProWrite offers shortcuts, can you tell me about some of them?

A: ProWrite has a number of shortcuts. Here are a few you might not be aware of:

Holding down the Alt key while dragging either the left-indent or left-margin marker on the ruler automatically drags both markers.

Double-clicking on the horizontal ruler anywhere outside of the active regions hides the ruler icons while keeping the ruler visible. This is handy when you want more of the window available for your text, but still need to set margins or tab stops. Double-clicking again brings the icons back.

Double-clicking on a picture brings up the image's Picture Settings requester, where you can adjust the images' text wrap, size, and name.

Clicking on the page indicator at the bottom left of the window summons the Go To Page requester.

Q: Can you offer any advice to make working with outline fonts faster and easier?

A: Sure. Normally, ProWrite builds a font when you first use it (usually when the document is loaded). This initial build can be slow, but once built the font stays ▶



Bill's TOMATO GAME

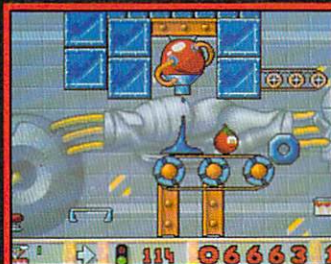
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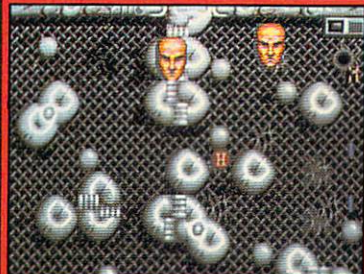
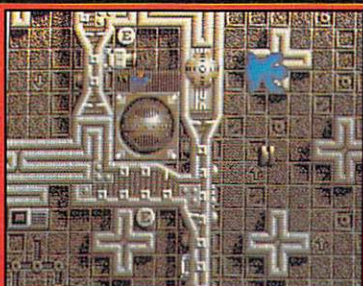


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in memory for instant access. If there are sizes you use often, you can eliminate this initial delay by building and saving the font using the Amiga's Fountain program. Once you do that, ProWrite will load the prebuilt font rather than build it from scratch.

If there are font sizes you use regularly, but not often enough to justify prebuilding, you can use Fountain to have those sizes listed in ProWrite's Font requester. Then you can select a size just by clicking on it rather than having to type the number.

Q: How can I use ProWrite to get the best from my printer?

A: If you always print in Normal or High quality, turn off the Aspect Adjusted setting in the Page Setup requester, and set the print density to a fairly high value (at least 150x150). This can improve your printouts dramatically, particularly when using outline fonts.

If you are doing NLQ or Draft printing, you should turn on the Print Pictures setting (in the Options section of the Print requester) even if there are no pictures in your documents. This enables advanced paper handling in NLQ and Draft modes—for things like 1½-line spacing and side-by-side columns with different line spacings.

ProWrite can print documents using your printer's built-in fonts (using the Draft and NLQ settings), using outline and bitmap fonts (using the Normal and High quality settings), or to a PostScript printer. Even though ProWrite is primarily a graphics-based word processor, it does very well with NLQ and Draft modes. Using outline fonts gives you very high-quality printouts even on dot-matrix printers.

Q: How does ProWrite integrate with other programs?

A: You can use Flow (New Horizons' outline processor) to create an outline for your manuscript, which you can then load directly into ProWrite.

You can use the HotLinks feature of ProWrite to tightly bind ProWrite with other HotLinks-capable programs. For example, rather than including rudimentary drawing tools, ProWrite allows you to use HotLinks to make it work together with a full-blown graphics program as an integrated whole.

Even if your other programs do not support HotLinks, you can still exchange text and pictures with ProWrite through the system clipboard. Simply cut (or copy) the information from ProWrite and paste it into the other program (or vice-versa).

Q: I know that ProWrite has a sophisticated ARExx implementation, but I don't know ARExx at all. Can you give me a simple application example that I can use as a starting point for more advanced uses?

A: You can use ProWrite's ARExx system to assign shifted function keys to menu commands, even if you are not familiar with ARExx. As an example, if you wanted to assign Shift-F1 to the Print Preview command, follow these steps:

1. Create a new document containing only the following two lines:

```
/* Print Preview example */
```

```
PrintPreview
```

2. Save this document in the same drawer as

ProWrite, with the name Print Preview, using the Text Only format (with line feeds after every paragraph).

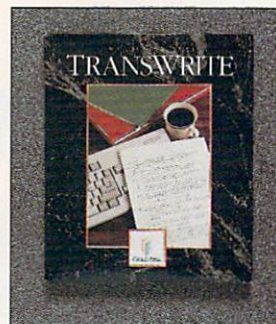
3. Choose Customize from the Macro menu, and in the first entry type Print Preview (the name of the file you just saved). Then click on Save.

That's all there is to it. Now to get a print preview, simply press Shift-F1.

James Bayless is president of New Horizons Software.

TransWrite Gold Disk

TransWrite, a fast text processor, is now bundled with other Gold Disk products in addition to being sold by itself. The answers to some of these common questions point to lesser-known program features; others offer time-saving tips.



Q: How do I put blank lines at the beginning of a document when printing?

A: Normally, TransWrite ignores any blank lines at the start of your document, just as it ignores extra space between page breaks. This assures that text fills the pages without unwanted gaps.

In order to force TransWrite to recognize the blank lines, put a hard space character (Ctrl-Space) at the very beginning of the document. TransWrite considers this to be a printable character, but it shows up as an ordinary space in the printout.

Q: Is there a quick way to highlight a word or two from the keyboard?

A: The standard keyboard alternative to the mouse click-and-drag is to press F5 at the start of the range of text, then press Shift-F5 at the end. An even quicker shortcut for marking a single word is to just do a cut and paste: hold the Right-Amiga key and press W then P (cut Word/Paste). Press W repeatedly to include more than one word in the highlighted region.

Q: How do I create "hanging indents"?

A: Hanging indents print the first line of a paragraph to the left of the margin. They are useful when numbering or labeling sections of text.

To add them, use TransWrite's "\$pi" (paragraph indent) command in conjunction with "\$lm," the left margin command. (The "\$" character, Shift-Alt-S, is used in TransWrite to introduce a formatting command.) To hang the start of a paragraph out by five characters, for example, you would use the command "pi-5." If you put the command "lm+5" on the same command line to increase the left margin of the text by the same amount, the body of the text will be indented but the first five characters will be aligned with the rest of the document. To switch back to normal, use "\$pi+5:lm-5."

Q: If I turn off my printer after using it with TransWrite, ►

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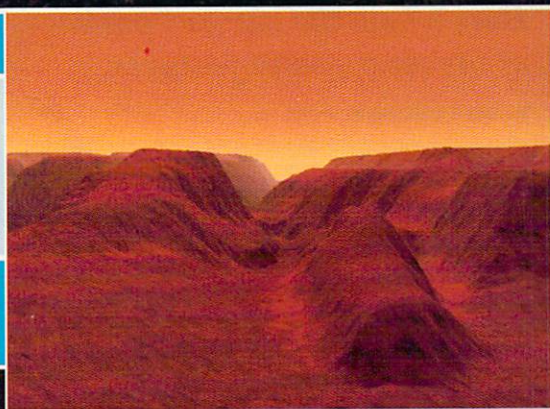
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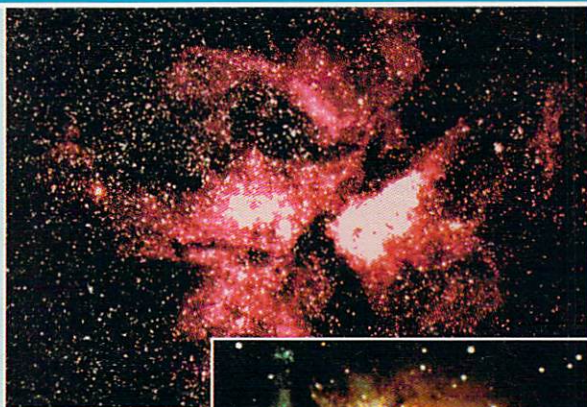
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The Powers of the Words

Here's how the current packages compare in terms of the most useful features.

By DAVE JOHNSON

	TransWrite (\$89.95) Gold Disk	Scribble! (\$39.95) Micro-Systems	Final Copy II (\$159.95) Softwood Company	excellence! 3.0 (\$99.95) Micro-Systems	ProWrite (\$99.95) New Horizons	QuickWrite (\$75) New Horizons	KindWords3 (\$124.95) The Disc Company	Personal Write (\$49.95) Cloanto/Centaur	WordsWorth (\$159.95) Digital/American Software
FONT HANDLING									
WYSIWYG ¹	Y	N	Y	Y	Y	Y	Y	N	Y
Amiga System Fonts ²	N	N	N	Y	Y	N	Y	N	Y
Compugraphic Outline Fonts	N	N	N	Y	Y	N	Y	N	Y
Easy Access to Special Characters ³	N	N	N	limited	Y	N	N	N	Y
PRINTING									
PostScript Support	N	N	Y	Y	Y	N	N	Y	Y
Page Preview	Y	N	Y	Y	Y	N	N	N	Y
High-Resolution Printing ⁴	N	N	Y	N	Y	N	Y	N	Y
DOCUMENTS									
Multiple Columns	N	N	Y	Y	Y	N	N	N	N
Mail Merge	Y	Y	Y	Y	Y	N	Y	Y	Y
Speed ⁵	2	3	4	5	9	7	6	1	8
FILE MANAGEMENT									
Save as ASCII	N	Y	Y	Y	Y	Y	Y	Y	Y
HotLinks Support ⁶	N	N	N	N	Y	N	N	N	N
Backup ⁷	N	N	B	B&AS	B&AS	B&AS	B	B(RAM:)	B&AS
GRAPHICS									
Combine Text and Graphics	N	Y	Y	Y	Y	N	Y	N	Y
Text Wrap Around Graphics	N	N	Y	N	Y	N	Y	N	Y
Resize/Reposition Graphics	N	N	Y	size only	Y	N	Y	N	N
UTILITIES									
Dictionary	90K	104K	144K	140K	100K	50K	100K	—	116K
Thesaurus	—	470K	1.4M	1.4M	300K	—	470K	—	140K
Grammar Checker	N	N	N	Y	N	N	N	N	N
Generate Index, Footnotes, etc.	N	N	N	Y	N	N	N	N	N
Macros ⁸	K	—	A	K&A	A	A	—	—	—
Workbench 2.0 Compatibility ⁹									
ASL File Requester	N	N	N	N	Y	Y	N	N	N
Appicon	N	N	N	Y	Y	Y	N	N	N
Kickstart 2.0 Resolutions	N	N	Y	Y	Y	Y	N	N	N

Key to the chart:

1 WYSIWYG (What You See Is What You Get): Program depicts a document on screen as accurately as possible by displaying custom fonts, special characters, and other elements as they should appear on paper.

2 If No, the program uses printer fonts only or (as in Final Copy) requires its own proprietary fonts to operate.

3 A special requester helps you insert unusual characters in the document that are not generally found on the keyboard.

4 Program uses a special routine to print documents at high resolution without PostScript, even on low-resolution dot-matrix printers.

5 In order to gauge the relative speed of each word processor at tasks other than typing, a search and replace operation was performed and 1000 occurrences of the word *apple* were replaced with the word *orange*. Programs were ranked from 1 (fastest) to 9 (slowest).

6 HotLinks is a file protocol established by Soft Logik's PageStream 2.2 layout software. It notifies PageStream when text and graphic files it subscribes to are changed and updates them automatically in the layout.

7 Program can make a backup (B) before saving a file, and save files automatically at specified intervals (AS).

8 Macros are commonly of the keystroke (K) or ARexx (A) variety.

9 Some programs claim Workbench 2.0 compatibility but actually take advantage of no specific 2.0 features. We wanted to know:

Can the program use the ASL file requester, including replacements such as those written by Stefan Stuntz and Khalid Aldoseri?

Does the program use an Appicon? This is a box on the Workbench into which document icons may be dropped. The document loads automatically into the word processor without starting additional copies of the program.

Can the program adapt to ECS screen resolutions such as Productivity mode?

Update Notes:

The Amiga and its software continue to evolve faster than ever. Custom PostScript support should not be an important issue with the availability of AmigaDOS 2.1, which at long last includes a PostScript printer driver.

With the advent of the AGA chips, an important feature to consider is the capability to display in 256 colors or more. The first word processor to take advantage of this is ProWrite 3.3.

Watch the Overscan and Reviews sections for forthcoming information on word-processor updates; there's sure to be more soon!

it forgets what font and letter quality to use. Why is this and how do I fix it?

A: Amiga printer drivers do not pass along TransWrite's printer setting information if they think the printer is already in the correct mode. If you turn your printer off (perhaps to fix a paper jam), the printer driver does not know that the printer lost the settings and so does not automatically resend them.

The simplest solution to this—simplest, that is, short of rebooting—is to print some text with different settings (use TransWrite's Printer Settings requester), and then switch back to the desired settings to print your document.

Q: I use Gold Disk's Professional Page 3.0 desktop-publishing program. Can I use TransWrite with it instead of the supplied Article Editor?

A: Yes. If TransWrite is running when you select Article Editor from Pro Page's Edit menu, the TransWrite screen will pop to the front and work just like Article Editor, except that you'll have TransWrite's additional features.

Q: How come some pages print out with more lines than others?

A: By default, TransWrite suppresses "widows" and "orphans," single-paragraph lines stranded by themselves at the top or bottom of a page. You can turn off this feature with the formatting command "\$wo-," though it is rarely desirable to do so.

Q: When saving a WordPerfect document, TransWrite sometimes asks the WordPerfect version number. Why doesn't it always ask?

A: If your document was loaded as a WordPerfect document, TransWrite already learned the version number from the file. If you created the document in TransWrite, however, it has to ask what format to save it in.

Q: What are your favorite shortcuts?

A: We have several:

For a more readable screen display, hold the Right Amiga key and press the + key two or three times.

Use the Delete key as a shortcut for the Cut (Right Amiga-X) feature.

Use Shift-Ctrl-C to restore your previous cursor position after repositioning.

To print a line of underlined spaces, put a hard space at the end.

Use bookmarks to easily jump to set positions in your document. Press Shift in combination with one of the first four function keys to set; and F1 through F4 alone to use.

When working with text styles, press F9 to edit style on/off codes directly.

A useful macro to put headings in bold: Right Amiga-D, Right Amiga-P, Shift-Right Amiga-B, cursor down.

Spaces at the start of a paragraph are ignored by Professional Page; use a Tab character (Ctrl-T) instead.

Use Shift-F6 to close the TransWrite display but keep the program available for use at any time.

Chris Zamara and Nick Sullivan, who together wrote TransWrite (in addition to scores of other programs), comprise AHA! Software.

Dave Johnson, a frequent contributor to AmigaWorld, has written reviews of almost every Amiga word processor on the market.



WordPerfect WordPerfect Corporation

WordPerfect is a standard on several platforms. These tips are particular to the Amiga version.

Q: How do I import and export WordPerfect files from the IBM or Macintosh?

A: To import: The file must be saved as an IBM 4.2 file. Using some kind of DOS-translation program or a modem, copy the 4.2 file to an AmigaDOS disk. While in WordPerfect, select Import from the Project menu or use the Text In/Out key (Ctrl-F5) to import the file.

To export: Save the file (using the standard Save command rather than Export) to an Amiga disk and use a DOS-translation program to copy the file to an IBM or Macintosh disk. WordPerfect 5.0 and 5.1 for DOS, WordPerfect 2.1 for Macintosh, and LetterPerfect will import the file directly (as WP 4.2 files) and retain all formatting. WordPerfect 4.2 for DOS and WordPerfect 5.1 for Windows will import the file as a WP 4.2 file and remove any italics.

Q: I got the message "Error can't open printer device" when I tried to print. What happened?

A: This message appears when you try to print through Preferences without a Preferences driver for your printer. Go into Print Control (Shift-F7-3), and click on Select Printers. Then double-click on your printer to bring up the Printer Options screen. Change your destination from #1 Printer Device to #2 Other Device or File. Then type PAR: to indicate your parallel device (or SER: if your printer is serial) in the box below. Accept and save everything, and try printing again.

Q: How do I copy printer drivers from one Print disk to another?

A: First rename the disk you are going to copy to (something other than Print) and place that disk in df1:. Then load the PrintDef program on your hard drive or another Print disk (which should be in df0:), and select Printer Code Definitions (3). Scroll down until you find the printer that you want to move, and press Shift-F10. Click on OK to copy the definition to df1:. Exit out of PrintDef, remove the disk from df0:, and rename the disk in df1: back to Print.

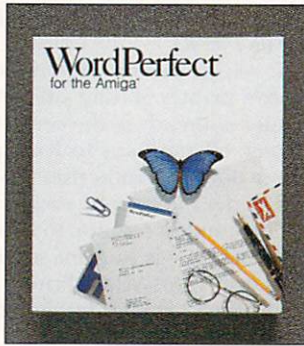
Q: Can a macro replace a file?

A: No, a macro cannot say "Yes" to replace a file. The only way around it is to exit WordPerfect and double-click the Setup icon. Select Confirmation Options (option B), and turn File Replacement off (uncheck it).

The only drawback to this setting is that WordPerfect will subsequently never ask if you want to replace a file.

Q: I can see the Print Control menu, but nothing will print. What should I do?

A: If you are trying to print with WordPerfect 4.1.12, the Print Control will appear but the status says "n/a" and nothing prints. Check your version of Print (select Control from the Print menu and press Help). You



must be using 4.1.12 (1/15/91) of Print when printing from WP 4.1.12. No other releases will work.

Q: Why won't Speller skip words or let me add words to my dictionary?

A: You can choose to add words to your dictionary. These words are added to a supplemental dictionary (SUP.WP) that can hold up to 4096 bytes of information. Once you reach this limit, the Speller will no longer skip or add words when checking a document.

Q: Why won't my tabs, justification, and column settings print correctly with my Postscript printer?

A: To ensure that your formatting prints correctly, choose the recommended pitch and font settings outlined in the Readme.Print file on your Print disk.

Incidentally, the leading Amiga desktop-publishing packages directly import WordPerfect Amiga files so you can add fonts and graphics to your document.

Q: Can you give me a brief rundown of keyboard shortcuts?

A: The following are used with the Left Amiga key:

- I** Block from the cursor to the end of the word.
- O** Block from the cursor to the end of the sentence.
- P** Block from the cursor to the end of the paragraph.
- J** Block from the cursor to the beginning of the word.
- K** Block from the cursor to the beginning of the sentence.
- L** Block from the cursor to the beginning of the paragraph.
- N** Bring Workbench to the front.
- M** Send Workbench to the back.

You can also press Right Amiga with these:

- X** Cut blocked text.
- C** Copy blocked text.
- P** Paste previously cut or copied text.
- I** Toggle italics on/off.
- B** Turn bold on/off.
- U** Toggle underline on/off.
- Q** Cancel (same as F1).
- S** Save a file (same as F10).

Q: I know WordPerfect Corporation will not continue to develop the Amiga version. Will you offer any trade-in policy so I can use the latest version of WordPerfect on my emulator or an other-platform machine?

A: Yes. Until June 30, 1993, Amiga WordPerfect customers can do a cross-platform trade to WordPerfect for DOS, Windows, or Macintosh for \$150, or to LetterPerfect for DOS or Macintosh for \$89.

To take advantage of the offer you must relinquish your original Amiga license number in writing and provide proof of ownership (such as original disks or certificate of license). For details contact:

WordPerfect Corporation

Attn: Angie Williams MS J190
1555 N. Technology Way
Orem, UT 84057
800/451-5151

Liz Tanner and Mike Madsen provide technical and marketing assistance for WordPerfect Corporation. ■

Tune Up Your Hard Drive!

Like a smooth-running car engine, your hard drive can deliver increased power and performance



to your system. Here's a seven-point maintenance and protection routine to keep your drive humming.

THANKS TO STEADILY decreasing prices, more Amiga owners than ever are ending the "floppy-disk shuffle" and upgrading to the speed and convenience of a roomy hard drive. While pulling out into the fast lane with your newly revamped system may be the smartest move you've ever made, there are several things to keep in mind. To reap the benefits of increased performance, you must follow a vigorous regimen of drive maintenance and data protection. What follows are seven tips on maximizing your hard-drive investment, ranging from simple organizational techniques to ►

By Jeff James

advanced data-compression options. Getting the most out of your hard drive doesn't require much time or effort; several of the recommendations listed below involve nothing more than a shareware disk utility and a few minutes of work. Please note, however, that before following any of these suggestions, you should make a complete backup of the data on your hard drive.



PARTITION

Partitioning your hard drive—dividing it into smaller sections—offers several performance advantages. Since the read/write heads of your hard drive do not have to cover as much space to locate files, access time is decreased. Smaller partitions also make backups less of a chore, and the reduced volume size limits file fragmentation. If files do fragment or become corrupted, it is much easier to repair or restore a small partition than the entire drive. Keep in mind, of course, that Amiga models sold with preinstalled hard drives—such as the A2000HD, A2500, and the A3000—usually ship with several partitions. My Amiga 3000, for example, has three, each with a volume name by which AmigaDOS can identify it: Work:, System 2.x:, and System 1.3:.

Because partitioning destroys any data that is currently on the hard drive, you should make a backup (see Tip #7) if you want to save any data that is on the hard drive before you begin. You will also need partitioning software; the Amiga 2000HD, A2500, and A3000 ship with the HDtoolbox utility, while hard drives purchased from other vendors—such as GVP, Supra, and so on—will include software to partition drives.



ORGANIZE

After partitioning your hard drive and installing your favorite programs, you should develop an organizational system for the files and directories on your hard drive. Instead of placing your programs all in your root directory (i.e., such as Work:), you should create separate directories where you group related programs. On my own hard drive, I've created a drawer called "WP" on my Work: partition where I store my two favorite word processors in their own respective directories. Having an efficient organizational system makes selective backups of individual directories possible, keeps the clutter in your root directory to a minimum, and helps you find things in a hurry.

Moving large numbers of files around your hard drive is facilitated by using file-utility programs such as **Directory Opus** (\$59.95, *INOVAtrionics*) and **DiskMaster II** (\$49.95, *Progressive Peripherals*). Both of these programs excel at moving, deleting, renaming, and finding large numbers of files and directories. In the shareware arena, Timm Martin's **SID2** stacks up fa-

vorably against the commercial offerings. (To locate vendors of the commercial products mentioned, consult the "Manufacturers'/Distributors' Addresses" list on p. 108. Concerning PD/shareware, information on the major telecommunications networks and the Fred Fish Collection is also contained in that list.)

After you've neatly organized your files in drawers and directories, remove any duplicate or unwanted files and directories. Duplicate files can be found and deleted with the help of the shareware programs **FileSearch** (by Matt Crowd, Fred Fish #531) and **Scan** (by Walter Rothe, Fred Fish #670). Unwanted files should be deleted; files you want to keep—but don't use very often—should be moved to floppy disks for safe keeping.



VERIFY

Although the vast majority of space on a hard drive is usable for storing data, a small number of disk sectors may be defective and unsuitable for use. Finding defective sectors and other hard-drive imperfections falls squarely into the realm of disk-utility programs that search for and either repair or mark bad sectors. My favorite hard-drive verification utility is found in **Quarterback Tools** (\$89.95, *Central Coast / New Horizons*), although **Dunlap Utilities** (\$49.95, *Progressive Peripherals*) and **Dr. Ami** (\$49.95, *Free Spirit*) have comparable capabilities. **DFrags** (by Custom Services, Fred Fish #461) is an excellent shareware program that finds—but does not repair or mark—bad sectors. Finally, the HDtoolbox included with AmigaDOS 2.0 features a defective-sector locator, and several other hard-drive manufacturers include such utilities with their hard drives.



OPTIMIZE

When your hard drive saves data, it will try to store the data on a series of sequential sectors, one after the other. Unfortunately, there might not be enough contiguous sectors to hold all the data, so the drive must find another group of sectors upon which to store the remainder. When you want to use that saved data again, the drive has to jump back and forth among the widely scattered sectors before reading the data into memory. This is where disk-optimization software comes into play: An optimization ►

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Circle 4 on Reader Service card.

program combs the sectors on your hard drive, relocating data and programs in sequential, adjacent sectors. Quarterback Tools offers an excellent disk optimizer; while **B.A.D.** (\$49.95, *Centaur*) offers a similar capability. In terms of shareware, **Optimizer** (by Tim Stotelmeyer, Fred Fish #519) does an acceptable job of getting all your data organized. Hard-drive optimization, however, can take some time; users of very large hard drives can expect to wait 30 minutes or more for the process to be completed.



CACHE

After you've partitioned, organized and optimized your hard drive, your next step is to use a memory cache. Often called a buffer, a memory cache acts as a go-between for your hard drive and system memory. A cache holds information previously loaded from the hard drive in a reserved section of RAM taken from your main system memory. Instead of having to access the hard drive repeatedly to retrieve information, your Amiga can go to the cache and grab the needed data, thus bypassing the hard drive. A cache is particularly effective when used with programs, such as CanDo and WordPerfect, that rely on dozens of smaller support files and programs for their operation.

The most readily accessible and inexpensive disk-caching program is included with your Amiga when you buy it: the **ADDBUFFERS** program. To use **ADDBUFFERS**, you need to add the following command to your startup-sequence:

ADDBUFFERS <volume name>: 50

Volume name refers to the partition—or volume—you want to cache, such as Work:, DH0:, DH1:, and so on. The number at the end of the command specifies how much memory you want the **ADDBUFFERS** command to use. In this case, **ADDBUFFERS** will use fifty 500-byte buffers, for a total of 25K.

Unfortunately, **ADDBUFFERS** does not make a distinction between chip and fast memory. A better option is an older program, **BlitzDisk**, included in the product **TextEd Plus**. Unlike **ADDBUFFERS**, **BlitzDisk** can be instructed to use either fast RAM or chip RAM for more efficient operation. You may have to do some searching for this one, however, because the manufacturer, Microsmiths, is no longer in business.



COMPRESS

After months of using your hard drive, you may begin to run out of room. While it's impossible to increase the physical size of your current hard drive, you can reduce the size of the data that resides upon it. Conventional file-compression tools—such as the shareware **ARC**, **LHARC**, **PKZIP**, and **ZOO** archival formats—work well for compressing

infrequently used files. For graphic images, **ASDG's Art Department Professional** (\$240) can load regular IFF images and save them in JPEG format, an advanced graphics-compression format that dramatically reduces the size of stored graphics.

Undoubtedly the most elegant file-compression solution is the shareware program **Power Packer** (by Nico Francois, Fred Fish #253). Unlike other compression programs—which require you to “manually” decompress the files—**Power Packer** works automatically, thanks to a small decompression routine. **Power Packer** automatically decompresses compressed files when you double-click on the compressed program's icon. **Power Packer Professional**, a commercial version of **Power Packer** with speedier compression and additional features, is available from **JumpDisk** for \$29.95.



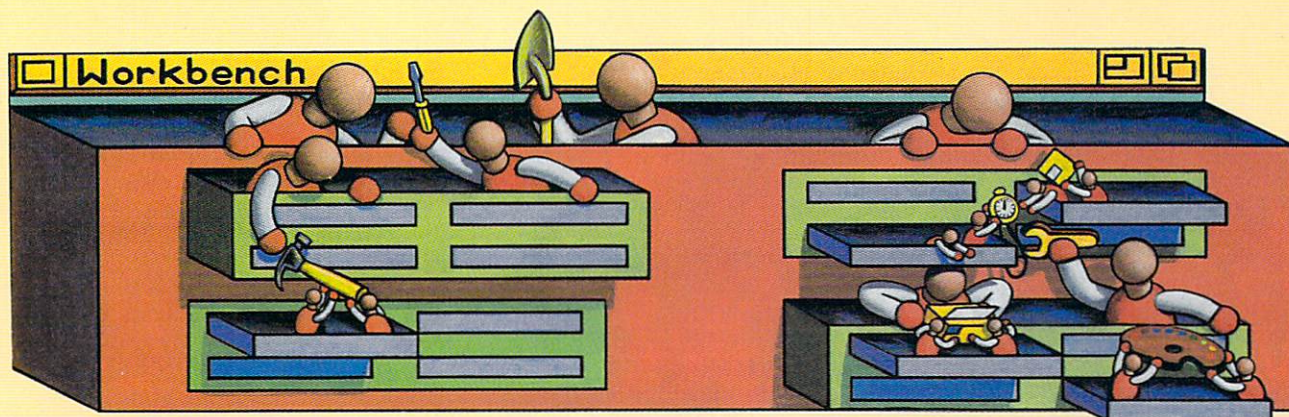
BACK UP

Last and certainly not least, making a back-up copy of the contents of your hard drive is essential. Murphy's Law applies itself with a vengeance to hard drives: If your hard drive ever decides to bite the dust, it will usually take a year's worth of accounting information or the only copy of your 50,000 word novel along with it.

A large number of back-up programs, both commercial and freely distributable, are available for the Amiga. Two of my favorite commercial programs are **Ami-Back** (\$79.95, *Moonlighter Software*) and **Quarterback 5.0** (\$75, *Central Coast / New Horizons*). Each offers a wide range of back-up features, including support for SCSI tape drives, file-compression options, and many other useful amenities. If you're looking for a basic, no-frills back-up program, the **HD-Backup** program included with AmigaDOS 2.0 will get the job done. Other hard-drive-equipped Amiga models should also include a copy of **HDBackup**, and several third-party hardware vendors include their own back-up utilities. In the shareware arena, two excellent back-up programs are **Backup v2.06** (by Matt Dillon, Fred Fish #434) and **MRBackup v5.02a** (by Mark Rinfret, Fred Fish #465), both of which offer an impressive list of features.

Thanks to the growing library of Amiga disk-utility software, getting the most out of your hard drive is easier to accomplish than ever before. Even more useful programs are looming on the horizon; **Moonlighter Software's** forthcoming **Ami-Back Tools** utility package should be available by the time you read this. By following a consistently implemented program of hard-drive maintenance in conjunction with a software toolbox stocked with the latest Amiga disk-utility programs, you will be able to squeeze extra mileage and performance out of your hard drive for years to come. ■

Jeff James has been using hard-drive equipped Amigas for more than four years. A frequent contributor to several computer publications, he is currently a student at Colorado State University where he's majoring in Technical Journalism.



Digging in to DOS

A SERIES THAT EXPLORES THE AMIGA'S RELEASE 2 OPERATING SYSTEM

*Last month we explored
some rules of Workbench 2's
all-new "Shell game."*

*In Part 3, we uncover more
Shell improvements.*

One important new Shell feature is the ability to feed the text output of one command as input to another. Say you want to use the ECHO command to print the total amount of free memory in a line such as "The total amount of memory available is x bytes," where x is the number of bytes. The output of AVAIL can give you this number. By enclosing this command in a pair of back ticks (the back tick character is located on the key just below ESC), you can embed AVAIL within the ECHO command as follows:

ECHO "The total amount of available memory is `AVAIL TOTAL` bytes"

When the Shell executes this command, it performs the AVAIL TOTAL command first, and includes the results in the string printed by the ECHO command:

The total amount of available memory is 965,432 bytes

When you use a back tick command in an alias or prompt string, however, the embedded commands are

executed at the time the alias or prompt is defined, not when it is executed. If you tried to create an alias for the above command with

ALIAS free ECHO "The total amount of available memory is `AVAIL TOTAL` bytes"

you would soon find out that the command AVAIL TOTAL is evaluated only once, at the time the ALIAS is defined. If there are 965,432 bytes available at that time, that is the number you will see whenever you issue your new FREE command, regardless of how much memory is actually free at that time. In order to have the embedded command executed each time the alias (or prompt) is used, you must use the asterisk escape character in front of each back tick character. By changing the ALIAS command to

ALIAS free ECHO "The total amount of available memory is *`AVAIL TOTAL`* bytes"

you'll get an accurate tally of free memory whenever you use the FREE alias. ▶

BY SHELDON LEEMON

You can use the back tick feature whenever the input of one command requires data that is derived from the output of another. If, for example, you wish to send a BREAK signal to a process running the WAIT command to tell it to stop waiting, but you do not know its process number, you can use the STATUS command to find that number and send it to the BREAK signal:

BREAK `STATUS Com=WAIT`

Feeding the output of a command through ECHO via back ticks lets you use the ability to print only part of a sentence. For example, you can store the model number of the computer's microprocessor in a global-environment variable named CPU with the command

ECHO FIRST 9 LEN 5 "`CPU`" TO Env:CPU

which discards all but the five-character processor number from the output of the CPU command. Note that `CPU` must also be surrounded by double quotes in order for this command to work properly.

ON THE INSIDE

The 2.0 release makes some AmigaDOS commands internal for the first time. More than 30 commands, including RUN, PATH, and NEWCLI, are now right in the Kickstart ROM and need not be loaded from disk.

You still can remove or replace an internal command, however, using the REMOVE or REPLACE options of the RESIDENT command. Just typing RESIDENT by itself will give you a complete list of internal commands. While the CD command is now resident, it is also largely unnecessary thanks to a new Shell feature. In 2.0, just typing the name of a directory at the Shell prompt makes that directory the current one. Many other familiar Amiga commands have taken on new functions, similar to those offered by popular public-domain programs. For example, when you use the optional FLUSH keyword with the AVAIL command, it removes any libraries, devices, or fonts that you had loaded into memory but are no longer using, just as the public-domain Flush program does. Similarly, the SEARCH command has a new FILE option which, like the FileFind program, lets you search your hard disk for a particular filename, rather than for a text string in the file. You could use the following command, for example, to print the full pathname of every file on volume SYS: that ends in ".doc":

SEARCH Sys: #7.doc FILE ALL

The ASSIGN command also has several handy new options. One of these, the ADD keyword, makes it function as the public-domain PathAssign program, which allows you to assign one logical device name to several directories. This enables you, for example, to assign the FONTS: designation to several additional directories:

ASSIGN FONTS: Work:PublishingFonts Work:VideoFonts ADD

With this option you can organize your fonts in separate groups while still keeping them all accessible to the system. Commands such as DIR and COPY that use only one target directory default to the first directory to which the logical assignment was made. Therefore, if you want hard-drive installation programs to put more fonts in a directory other than SYS:Fonts, you might want to add a line like this to your user-startup file:

ASSIGN Fonts: Work:ExtraFonts Sys:Fonts

Other ASSIGN options favor floppy users. The DEFER keyword delays the assignment until a command refers to the logical device. This lets you make the assignment to the user-startup file automatically, without receiving a prompt to insert the specified volume. The PATH keyword is even handier. It creates an assignment that is reevaluated each time you use it. For example, the command

ASSIGN C: DF0:C PATH

causes AmigaDOS to accept the C directory of whatever disk happens to be in the internal drive as C:. This lets you replace your startup disk with any other disk that contains a C directory, and use the commands in that C directory as if they were on the disk you booted from.

ALL-NEW COMMANDS

Besides enhancing existing commands, 2.0 added brand-new ones. One of these, the CPU command, performs all the functions of the public-domain SETCPU program. It lets you control the advanced features of 68030 and 68040 processors. CPU also enables you to turn the data and instruction caches on, for speed, or off, for compatibility. (The 2.1 version also lets you control the copy-back mode of the 68040's data cache.) Further, the command's FASTROM option allows you to copy the Kickstart ROM image to 32-bit memory, provided you have a Memory Management Unit. This boosts overall speed slightly.

Another new command, MAKELINK, lets you create a file pointer in one directory that points to a file in another directory within the same volume. This allows one program to be found in several directories at once, without taking up much space. For example, the icons for document files that come with public-domain or shareware programs can specify one of several text display programs—C:More, C:MuchMore, C:Less, etc. You could modify the icons on each of those document files to reflect the display program you have, but an easier way is to create links in your user-startup file:

MAKELINK C:More SYS:Utilities/More

MAKELINK C:MuchMore SYS:Utilities/More

MAKELINK C:Less SYS:Utilities/More

This way, a project icon that looks for any of the default tools named above will be directed to the SYS:Utilities/More program. Instead of four text display programs, you need only one. Keep in mind, however, that for now you can create links only between directories on the same volume.

These are just some of the important changes made to the AmigaDOS Shell under 2.0. For every improvement I've mentioned, there are one or two others that I haven't had room for. There is much in Release 2 for CLI fans to cheer about. Not only that, but improvements keep on coming. Just wait until you see the RequestChoice and RequestFile commands in Workbench 3.0! That, however, is a story for another day. ■

Sheldon Leemon is a respected authority on the Amiga and is currently finishing a book about Workbench 2.0. Write to him c/o AmigaWorld Editorial, 80 Elm St., Peterborough, NH 03458.

1992
SOFTWARE
AWARDS

The Best of Free

You've heard of Emmy, Obie, Grammy, and Tony...so why not "Freebie" Awards?

Join our gala affair honoring the best freely distributable software of 1992.

The first envelope please...

A simple software fact of life is that there are many kinds of programs for which there just are no commercial counterparts. This is what has made—and keeps making—freely distributable Amiga software so exciting. You never know what little gem of a program you'll discover each day. No one issues press releases and there are no glossy ads to drool over. Freely distributable (FD) software just kind of shows up; while the mediocre stuff fades from memory, news of the good stuff's power and usefulness quickly spreads over the wires, through user groups, and—all too rarely—in articles like this one.

Of course, even with seven years of FD software history, there's still no freely distributable paint program that can hold a candle to DeluxePaint, a shareware desktop publisher that can touch PageStream or Professional Page, or a free word processor that can really compete with the best commercial offerings. There are simply some flavors of software that take so much work to produce, both in design and in programming, that not only ►

By Harv Laser



would it be a monumental one-person job, but also it would be unlikely to find many developers willing to invest that much of their time and talent in a product for which they may see just a pittance in shareware dollars.

1992: SLOW BUT STEADY PROGRESS

Evolutionary, not revolutionary, is an apt description for 1992 when we look back at the body of freely distributable Amiga software released. Many excellent programs appeared in the last twelve months, but the number of jaw-dropping-gotta-have-it titles was small. There are a number of reasons for this. For one, as the Amiga has matured, many developers who used to release their software free for the taking have shifted to producing commercial packages, or have gone to work for established companies and just don't have the time anymore. For another, when Workbench 2.04 appeared, it eliminated the demand for all those little utilities needed to make 1.3 do things that it didn't do right out of the box.

So what follows are my picks of the best of the best of the freely distributable software released in 1992. To source these titles, check the Fred Fish disk collection, consult the catalogs of "public-domain" disk sellers, or, fastest of all, fire up your modem and download them from your favorite BBS or commercial service. And support those shareware authors. Without them, using an Amiga would be a lot less fun. *(Editor's Note: The term "freely distributable" [FD] software encompasses a number of different categories of programs. See the sidebar "FD Software: Facts and Sources" for a clarification. Also included there is information about sources from which to obtain FD software.)*

You'll find no artwork here. No animations or musical compositions or games. I've also left out any software that is distributed in a "crippled" form with missing features supplied only when a contribution is made. This is a pack of truly useful and usable programs, developed by some very talented folks, which I think you'll enjoy using.

My picks also are not intended as an all-inclusive list. There just isn't enough space here, and my tastes will

certainly differ in some ways—or perhaps completely—from yours. But before sitting down to write this, I talked to a lot of power users and just plain Amiga folks to get their opinions. All had their personal stable of freely distributable favorites that they just couldn't live without, and no two were the same, but in my nonscientific survey, almost everyone mentioned one or more of these programs as a must-have.

So, in no particular order, here are the 1992 selections:



LhA Version 1.38 (or higher)

Stefan Boberg

Archiving and compression
Shareware

My hunch is that more people use LhA every day than any other single user-written utility. It's an archiver/librarian/compression program used to pack single or multiple files for storage or transmission by modem. It can deal with archives whose filenames end with .LZH or .LHA, and it's faster than any other "LHARC" file manipulator—so you can safely throw away the older ones.

These kinds of compressors have gotten better over the years, and LhA is the best so far. It has so many options and toggles that to list them all would fill an entire page. Most people will never use nine-tenths of LhA's features, but they're there for advanced users who want them. Get the latest version number you can find. The official distribution always takes the form of a self-extracting ".run" file. The author releases a newer version almost monthly, so paying his shareware fee ensures that you are constantly getting more features and increased speed—although the freely distributable "evaluation" version is perfectly serviceable.



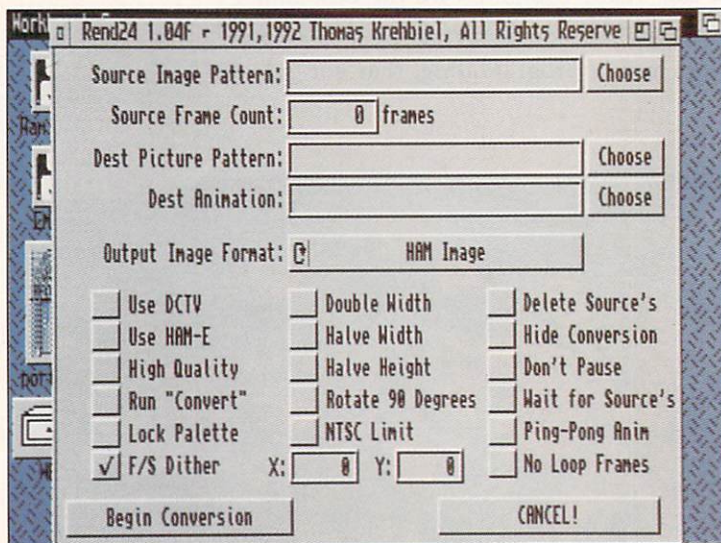
Rend24 Version 1.04f

Thomas Krehbiel

JPEG/GIF viewer and animation
batch processor
Shareware

24-bit color images are enormous. A single IFF24 file can easily fill an entire floppy disk and then some. The solution to storing these "deep-color" images is the compression scheme developed by the Joint Photographic Experts Group known as JPEG. Although it provides varying degrees of image squeezing, JPEG can typically turn a one-meg IFF24 into a 50K file with virtually no visual loss. You don't need to use a 24-bit display device to see JPEG images, although they sure look prettier when you do. You can decompress them and view them in "normal" Amiga modes such as hires and HAM.

There are excellent commercial solutions to achieve the same thing, but if you're not ready to spend the money, Rend24 may be all you need. It can load, decompress, and display full-screen JPEG or GIF image files on any Amiga with about 3MB of RAM or more. While it saves only normal IFF formats, Rend24 has other slick features. It's a batch processor that can sit waiting for your renderer, such as LightWave 3D, Imag-



Rend24 has a host of slick features.

ine, or Vista Pro, to write IFF24 output files to disk. Rend24 then grabs them, converts them to an Amiga-displayable format and builds them into an .anim file, or even to DCTV format if you specify. The user interface is slick and very easy to control. This is a lot of program for very little shareware money.



View 3.2
Michael Hartman/Cryogenic Software
Animation and IFF viewer
Freely Distributable

I've lost count of the number of animation players and IFF viewers out there, and every one of them makes claims to do a couple things the others can't. But for all-around ease of use and "correctness" in the way it deals with standard opcode-5 and -6 animation files and DCTV animation files, especially those which are not full-screen size, View 3.2 wins hands down. Its pretty screen and simple file requester make it easy for anyone to use. Built-in help reminds you of which keys control certain features. It also centers small-size animations on the screen. While View 3.2 doesn't sport a lot of bells and whistles, it does what it's supposed to do and does it well.



EdPlayer 2.1
Ed Mackey
Music "MODule" player/sequencer
Shareware

There are now thousands of music MODules out there for the grabbing. Some are brilliant little compositions, written with all different kinds of software, with names like MED, Soundtracker, and Noisetracker. What you need is a player with an easy-to-use interface that can handle these different formats and give you a lot of playback options. What you probably want is one that can sequence the tunes in jukebox format, multi-tasks well, has lots of slick features, and most of all is fun to use. What you want is EdPlayer.

The EdPlayer 2.1 interface looks like a CD deck with an LED readout display. There's built-in help for every button and gadget, plus there's an ARexx port. It handles PAL or NTSC mode modules, offers random shuffle play, and provides fade-out control. Its EdSynth keyboard screen even animates the notes being played. You can iconify EdPlayer down to a tiny window, or you can use EdPlayer Jr., a version that has no interface at all but consumes only a tiny amount of chip RAM. EdPlayer is simply a joy to behold.

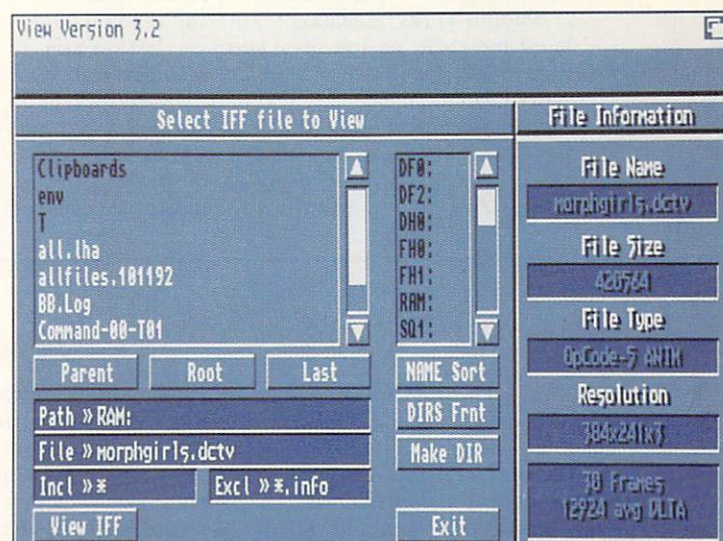


PortalX 1.10
Steve Tibbett
Commercial dial-up service "front end"
Shareware
(requires 2.04 or higher)

Using commercial on-line systems (i.e., those to which you pay a fee) to read and post messages, up-

and download files, or chat live with other people is very popular but can be a great time waster. Some people practically live on line, but others want to get on line, do their business, and log off as quickly as they can. While some of these services may charge relatively reasonable rates, all of them should have a "front-end" program that can automate common tasks.

PortalX is an Amiga front-end program for the Portal Online System. Once you've set it up and told it what to do, it logs on, gathers your waiting e-mail and the new articles posted to your favorite areas, and logs off. Its elaborate reader then displays your collected texts. You can now: compose replies off line using your favorite text editor; tell it to download files whose descriptions it fetched the last time; or write and queue up e-mail to send to your friends—whether they have a Portal address or an Internet-capable e-mail address anywhere in the world. The next time you use PortalX to call Portal, it will do what ►



View 3.2 makes viewing IFF and animation files easy.



EdPlayer 2.1 sports a clean, compact interface.

you've asked it to: send your e-mail, get area catalogs, reply to public articles, and download or upload files. PortalX has a slick and attractive interface with built-in multitasking help, and it makes use of many 2.04-specific programming features. The downloadable version is not crippled in any way, but shareware contributors will get newer versions first.



Aladdin
Tim Purves
Front end for GEnie
Freely Distributable

Aladdin is a similar front-end terminal program designed specifically for use with the GEnie telecommunications network. With it one can upload and download files, and read and respond to messages and electronic mail, all with a minimal amount of on-line time.

Aladdin works by dialing GEnie and reading all the latest messages posted since you were last on line. It then checks for personal mail, downloading it to your system. Finally, it looks in the on-line libraries you have indicated interest in, gathering information on any new files that have been added since your last session. (As GEnie has a large number of special-interest groups, Aladdin can prove very useful because it allows

you to be selective both as to the groups you monitor and the subtopics within each group. Only those areas and topics you indicate will be checked for activity.) Once this is done, it logs off the network and hangs up.

You can then, at your convenience, read the mail or messages, responding to them whenever you want. With its built-in text editor, you enter your replies, which are then saved to disk until your next on-line session. You can also look through the list of files in the libraries to see if you want to download any of them. Then, the next time you log onto GEnie, all your message and mail replies are sent, the files you specified are downloaded, and Aladdin again checks for new messages and uploaded files.

Aladdin should save every GEnie user money. Best of all, it's free for the downloading, so you can use your existing terminal software to download it from GEnie, and then use Aladdin for all subsequent on-line accesses.—LW



Parnet
Doug Walker/Software Distillery
Networking software
Freely Distributable
(requires a special parallel cable and two Amigas or an Amiga and a CDTV)

FD Software: Facts and Sources

WHILE "PUBLIC DOMAIN" (PD) may be the most common term for the kind of software presented in this article, it is not the most accurate one to use. Without going into the niceties of copyright law, let's say that while all PD software is freely distributable (FD), not all FD software is in the public domain.

FREE, PD, OR PAY A FEE?

Technically speaking, software in the public domain is not protected by copyright. It can be used or modified by anyone—and under certain conditions even sold by someone other than the author.

That's why many authors attach restrictions to the "free" use of their pro-

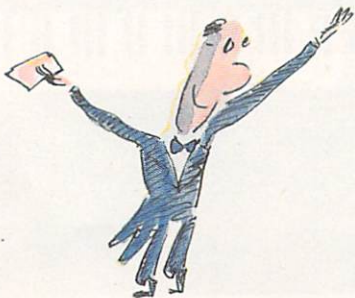
grams. Some simply release the program for free distribution, stating merely that you can use or modify the program as long it is for noncommercial purposes only. Others specify that the program is free to the public but, by retaining the copyright, stipulate that you cannot modify it without their permission. (This is called "copyrighted freeware.")

Finally, there are "shareware" programs (which may or may not be copyrighted) that are distributed freely by their authors—but with the stipulation that if you use and enjoy the program, you are requested to pay the author a specified token fee. Shareware is well worth the minimal cost because you will often then receive documentation and program updates as they become available. And, more importantly, you are benefitting all users because those shareware fees keep the author working on further updates and even new programs, as well.

FD SOURCES

There are many sources of freely distributable software. Some, like users' groups and local BBSs, have surpris-

ingly large collections and offer programs for free. (To contact the other sources mentioned below, consult the "Manufacturers'/Distributors' Addresses" list on p. 108.) The best known and one of the largest collections of FD software anywhere is the **Fred Fish Library of Freely Redistributable Software**. You can contact **Fred Fish** directly for a catalog-disk update, or you can find many of the titles in that collection on the major networks or in other collections from commercial FD disk sellers. The entire Fred Fish collection (more than 700 floppy-disks' worth) is also available on CD-ROM for \$74.95 from **HyperMedia Concepts**. The major information networks, all of which—to widely varying degrees—are sources for FD software, are: **BIX**, **CompuServe**, **GEnie**, and **Portal**. The largest of the commercial FD disk sellers is **DevWare**, with an extensive collection of FD software in many categories. Although a smaller operation, another useful outfit is **Premier Software**. As the Fred Fish collection shines in the utility/programming areas, Premier is a good source if you are looking for animations, sounds, graphics, and demos. □



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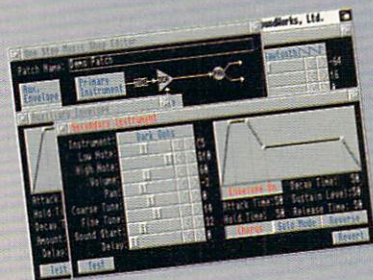
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No, Parnet wasn't released in 1992; it's a couple of years old. But with the release of CDTV (and with its new, lower price) and the growing popularity of CD-ROM software, this free little wonder has really been reborn. Simply put, you connect the parallel ports of two Amigas, or an Amiga and a CDTV, with a specially wired cable. You then install some software on both machines and run it, and you have a two-Amiga "network." This allows you to access CD-ROM software in CDTV's drive from your Amiga, and 650MB of data on a single CD is nothing short of incredible. A number of companies, including HyperMedia Concepts, have put the entire Fred Fisk disk collection on a single CD. I own a \$25 CD that has more than six thousand GIF pictures on it. And there's another one out there with over two thousand classic works of literature and historical documents. All of this is accessible to any Amiga software over the "NET:CD0" device with \$5 worth of cable and some free software. Remarkable.



GadToolsBox

Jaba Development (Jan van den Baard)

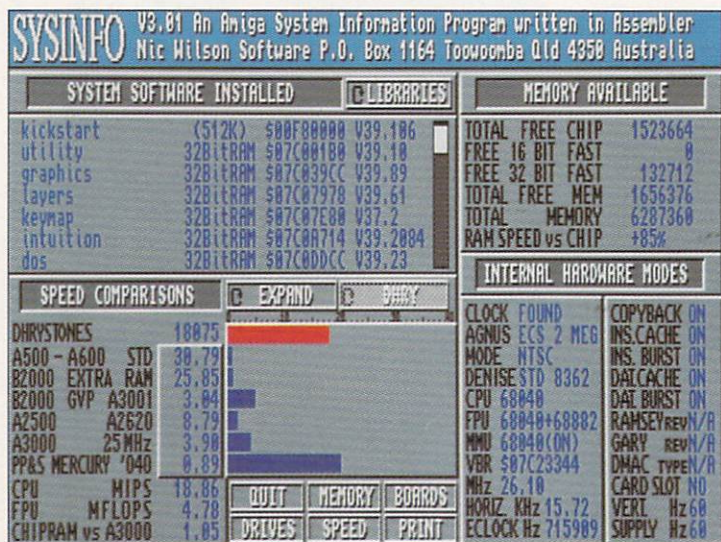
Programming tool

Freely Distributable

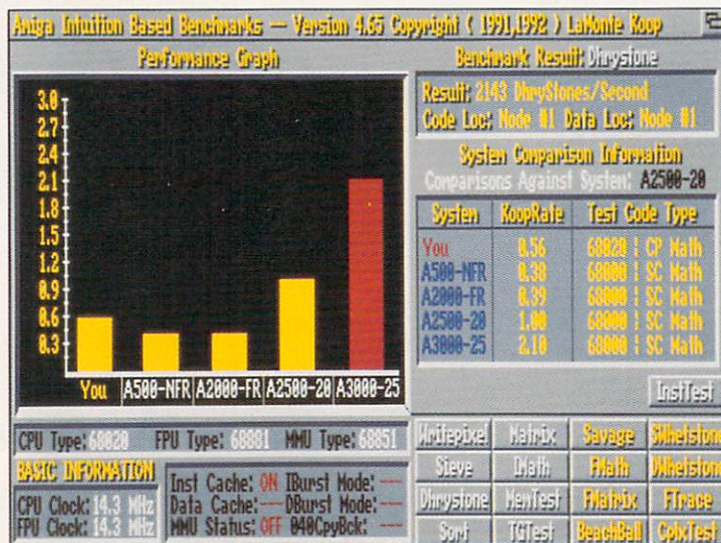
(requires 2.04 or higher, some

libraries, and optionally a C compiler)

Let's I be accused of naming only user-oriented programs here, some of my developer friends have explored me to include GadToolsBox in the Best of '92. This program's elaborate facilities allow you to easily design 2.04-and-up-compatible software interfaces, with your mouse and keyboard, using all of the new operating system's Intuition features for buttons, gadgets, list requesters, fonts, screens, and colors. You can then generate either C, assembly, or Oberon language routines without having to code everything "by hand." Instead of pounding out code to put a shadowed button on a beveled backdrop on a screen in your own software, with GadToolsBox you can simply draw it the way you want it to look, and the program will write the code for you.



SysInfo packs a pile of useful information on screen.



AIBB offers a wide variety of benchmark tests.



SysInfo

Nic Wilson

AIBB

LaMonte Koop

Benchmarking programs

Shareware

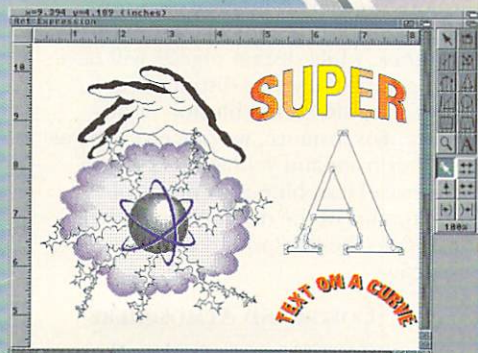
Again, get the newest versions of each of these. They are upgraded so frequently that any version numbers I name here will be old by the time you read this. SysInfo and AIBB (Amiga Intuition Based Benchmarks) are a pair of programs that tell you what you've got in your Amiga: memory, processors, drives, versions of your system software, and so on. Each can perform benchmark tests on your machine and then create bar graphs comparing your Amiga's performance to that of known standards such as a stock A600 or A3000. AIBB offers many more tests than SysInfo, but SysInfo crams more information on its main screen. Both programs can shut off multitasking while they run their tests for more accurate results.

Bragging rights are one reason to use benchmarking software, but another is that the more complicated your Amiga setup becomes, the more chances there are for you to unwittingly induce some slowdown in your system. By changing or removing other software in your startup-sequence and rerunning SysInfo or AIBB, you can see what effect such changes have on your system's overall speed performance. Again, neither of these programs was first released in 1992, but they have both matured and grown so much from their earlier incarnations that they are practically brand new. ■

Harv Laser is moderator/sysop for the Amiga Zone on the Portal system. He keeps up on FD developments by downloading scores of programs and perusing the many collections available. Write to him at PO Box 10141, Torrance, CA 90505.

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47

A continuing series
of tips, techniques,
and tricks for
creating more
imaginative Amiga
graphics.

By Joel Hagen

Putting Things In "Perspective" Part 1

CREATING AN ILLUSION of depth and distance in artwork is partly a matter of skill and observation and partly an understanding of certain principles of physics and perception. This and next month's column will help you explore some of these principles and suggest ways in which you can apply them to your Amiga painting and animation.

LINEAR VS. AERIAL PERSPECTIVE

When applied to art, the term "perspective" usually brings to mind diagrams of vanishing points, diagonal lines, railroad tracks, and fence posts receding into the distance. This "linear perspective" is a western invention, emerging most visibly in the 1400s in the work of Brunelleschi and Masaccio. Renaissance painters, such as Fra Angelico and Leonardo da Vinci, later perfected this concept as a system of mathematical rules for drawing.

We are accustomed to recognizing drawings employing linear perspective as sensible depictions of the real world. Not all cultures, though, would agree. Studies of some African tribal cultures, for example, reveal a different view of the world. To their perception, a western drawing with a man in the foreground and an elephant on a distant hill in the background makes no sense since elephants are not smaller than people.

Many graphics programs, such as DeluxePaint (Electronic Arts), include powerful implementations of linear perspective among their tools. For our purposes, however, let's look beyond these well-documented features to see how other aspects of perspective that have not been automated can play an important part in computer graphics.

As a fundamental definition, perspective is the art of depicting objects or landscapes in a way that expresses dimensions and spatial relationships. One of the most effective ways an artist can depict spatial relationships in a landscape is through "aerial perspective," a principle observed and used by Chinese artists before the emergence of linear perspective in the west. Haze

from moisture and dust in the air begins to obscure distant objects, creating aerial perspective.

By mimicking this effect, an artist can achieve an illusion of distance in a painting. Near objects will have bright, saturated colors. Distant objects will have lighter, grayer, less saturated colors. Near objects will have strong highlights, dark shadows, and high contrast, while distant objects will have low contrast and less distinct detail. Even hue affects the illusion of distance. For instance, we perceive blue as farther from and yellow as nearer to the eye. Thus, blue-gray or purple mountains in the distance and warm colors in the foreground enhance perspective.

LOCAL COLOR AND ATMOSPHERE

An instructive way to explore the nature of aerial perspective is with the Vista Pro (Virtual Reality Laboratories) landscape generator. Hitting the Haze DN button on the control panel introduces a calculated degree of haze density appropriate to the distance between the camera and the target. You can, however, enter your own figure in this setting to explore the effect of atmospheric perspective. As an experiment, I made a gray-violet sky in the Vista Pro Color Map, with haze and skyhaze a grayer version of that color.

Section one of the accompanying illustration shows a random fractal landscape generated with a haze density of 100. Section two shows the same landscape and Color Map with a haze density of 1000. Note the radical effect on the distant mountain, graying it toward the color of the haze and reducing detail. The foreground, by contrast, is barely affected. Experiment with different camera positions, haze densities, and colors on the same landscape for a do-it-yourself tutorial on aerial perspective.

Section three of the illustration applies the lessons learned from tests in Vista Pro. To simplify your own experiments with color and value in painting, try reducing the landscape to a composition of flat layers as I have done.

Experimenting with different concepts of perspective can add subtle richness and variety to your Amiga artwork.

These overlapping planes provide another visual cue enhancing the illusion of depth. Near objects overlap more distant objects. This may seem obvious, but few beginning artists make effective use of this simple principle of perspective.

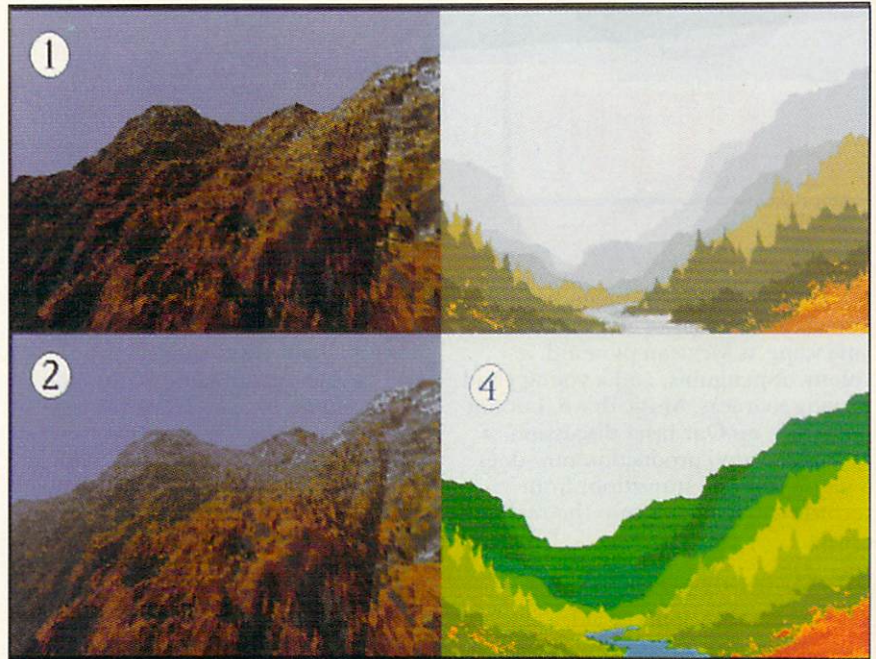
Artistically, the lack of detail in the distance also serves to steer the viewer's eye toward the foreground. Paint the most distant ridges in slightly darker versions of the sky color. Each ridge that is closer to your eye might be one notch darker in value. Begin introducing low-saturation, natural landscape color in the middle ground where you see my lines of trees taking shape. In the foreground, scumble in some rough areas of more saturated color for the visually close detail.

Any number of color schemes can be effective. If you want to try the colors I used in section three, here is a table of the RGB values beginning with the sky and moving toward the foreground.

	R	G	B
Sky	12	14	15
Ridges	12	13	14
	11	12	13
	10	11	12
	9	10	10
Trees	9	9	6
	7	7	5
	6	6	4
Ground	11	9	4
	9	6	3

Even the sky itself is affected by atmospheric perspective. Sky haze produces the greatest effect near the ground where we are looking through more atmosphere, and then diminishes toward the zenith. The sky in section three is enhanced with three layers of color. Above the sky color shown in the table is a layer of 11, 14, 15, and above that is a layer of 10, 14, 15.

You will find that you can make very subtle color changes if you adjust only the red or blue component of succes-



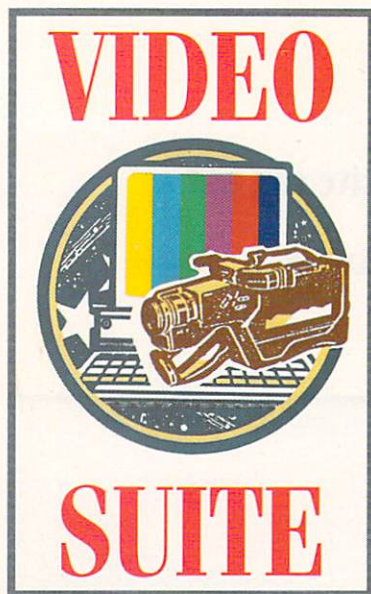
Experiments with haze settings in Vista Pro reveal principles of aerial perspective. These are then employed in painting section three and, for the sake of comparison, ignored in section four.

sive palette colors. Changing the green component or moving the value slider yields a much more drastic effect. You might also add a simple river shape to your landscape, as I did. This provides a touch of linear perspective to lead the eye back through the planes you have established. Just make it narrow in the distance and wide in the foreground.

For comparison, section four of the illustration shows exactly the same painting done in colors that ignore principles of aerial perspective. All the landscape planes are painted with the kind of saturated colors favored by beginning painters. Our memories of color are so vivid that they become exaggerated as we try to create them in the palette. I find that most beginners paint with colors at saturation levels between 10 and 15. By contrast, most of the saturation levels in section three are between 1 and 5.

Creating simplified landscapes reduced to planes serves as a foundation for examining the phenomenon of parallax and applying those observations to animation. This will be the topic next month in part two. ■

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sawyer, Oakdale, CA 95361. Please include a stamped, self-addressed envelope for a reply.



Audio for Video-2

We wrap up our two-part installment series

on the audio portion of video production

by facing the music.

By Michael Hanish

MUSIC UP. ABRUPT, ragged trombone solo. Pictures of a vast and dusty landscape, a Mexican pyramid, a colony of penguins, and a young child playing maracas. Music down, but not out. Voice up. Our brief discussion of audio for video production now does a segue (smooth transition) from recording techniques into the realm of music.

THE HEART OF THE MATTER

The musical elements of video underscore and bring out the emotions of the images and dialog. Here's a research assignment: Watch a movie (your choice) and take note of all the music cues, paying attention to how the music is used and its relation to the sound and dialog. Your notes will be long and detailed, and your remote control will get quite a workout. You'll find music accompanying a scene or sequence of scenes, with the rhythm of the music matching the rhythm of the pictures. It can set the mood before or after a scene, or support it like the frame of a house, exposing itself from time to time. The music track can be either in the background or foreground, and have a different effect on the whole piece depending on its relationship with the other elements.

The only hard and fast rule for a musical score is that it must work, meaning that it must have the result and effect you intend. Even so, there are some shoulds and shouldn'ts to

bear in mind. For instance, the music shouldn't obscure the dialog or overpower the images to such an extent that the viewer is confused. Also, the music should have some sort of relationship with the whole of the piece—support, contrast, diversion, or even random juxtaposition. The choices you make in creating a score have to be both instinctive and intellectual. The only way to tell whether it all works or not is to remove yourself from the role of creator and take in your piece as an impartial viewer. Make no assumptions and don't interpret too deeply on the first viewing. Most importantly, be honest with your reactions and impressions. Rationalization will keep you from seeing and feeling what is there.

If you choose not to create an original score, be very aware of whose music you are using and what the copyright laws are. If you have never made a piece of music from scratch, you may not have a good understanding of how much work is involved. Such work must be compensated for and, at its best, this is what copyright law tries to ensure. For a good overview of these rules and laws, see "Copy Rights and Wrongs," Feb. '91, p. 41.

HOMEMADE MUSIC

The actual business of composing is done with a sequencing program, using either native Amiga eight-bit samples for instrument sounds or the higher quality, MIDI-triggered sounds of external synthesizer- or sampler-modules. There is an abundance of sequencers available in a wide variety

of styles and levels of complexity. (For more information on samplers, MIDI, and sequencers, see "Talkin' Electronic Music Blues," May '91, p. 18.) Choose yours on the basis of its look and feel, features, and your preferences for work style and environment. My personal recommendation is for **Bars and Pipes Professional** (\$379, *The Blue Ribbon SoundWorks*), which offers the ability to work with both MIDI and internal Amiga sounds, lock to SMPTE time code, edit all parameters graphically, run synchronized to animations, and interface with external boards such as SunRize Industries' AD1012 and AD516 and GVP's IV24—and generally allows you to have a good time while making music. (To locate vendors of the products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 108.)

No matter which program you use, a stopwatch will be a good investment to aid in scoring music for a particular video piece. The idea is to build a timing list of all the places in the video you want music and sound effects to hit. Even a very rough cue list can help you to organize and plan the sections of music you need to create and where you want the changes to be. (More on this later.) This is not meant to rule out my old favorite method of soundtrack creation: improvisation. Crank up your music program, be it sequencer or an algorithmic composing tool such as **M** ▶



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(\$179, *Dr. T's Music Software*), roll the video, wail, and record the results into the sequencer or a multitrack tape recorder. Take your time and build up several layers of sounds. This method is also useful for creating a scratch track (to be discarded later), to which you can synchronize the final piece's dynamics and changes.

MATCH METHODS

The tough part, of course, is getting the video and audio parts (on tape and/or sequenced) to start at the same time. Many methods have been developed to deal with the problem of synchronization, from the funky to the fantastic. The funky end consists of simply trying to start both media at the same time through simple hand/eye coordination. This method is absolutely fine for pieces when the synchronization needs are not all that precise, such as laying broad accompaniment under a video sequence. Sound effects can be triggered from the sequencer at relatively specific times, with a rough accuracy of a second either way (see "Amiga Talkies: Syncing Sound with Animation," Special Issue '92, p. 58).

This is clearly not precise enough for many purposes; no one wants to hear the car door slam before they see it. The elegant solution is time code, either MIDI or SMPTE, a hardware-and-software method of locating precise points with single-frame (about one-thirtieth of a second) accuracy. In this way, you can have a sound effect play at precisely the correct instant while a music track also plays. To learn about the ins and outs of using time code on the Amiga, see "MIDI and SMPTE Compatibility," Jan. '91, p. 76, and "Frames of Reference," Special Issue '92, p. 27.

The most convenient way to get time code into your Amiga is in conjunction with a MIDI interface; the two best solutions currently available are **The Phantom** (\$350, *Dr. T's Music Software*) and the **Triple Play Plus/SyncPro** combination (\$189/\$199, *The Blue Ribbon SoundWorks*). The distinct advantage of the latter is the provision of three separately addressable MIDI-out ports; its disadvantage is the lack of a serial pass-through

connector. Both units and their software work well with several major sequencer packages, as well as SunRize's AD1012 and AD516.

BODY AND SOUL

Now comes the stage of putting all the audio pieces together into a complete soundtrack: layers of music, sound effects, and dialog. The main purpose of sound design, as it is with image editing, is to create or recreate a new reality from many discrete pieces. All the elements we have discussed above and last month must be woven together to produce the desired impression.

**"The goal
of the final mix is
to have each element
properly balanced;
audible and clear when
necessary, no matter
what its level."**

By the final mixing stage, you will have all the pieces prepared to their proper lengths and ready to start and end at the appropriate times. If there is original dialog, it must either be kept on its own audio track of the edit master tape or fed into the mixer in sync with the music and any added sound effects.

This is the time when you may well feel like an octopus, trying to start and stop a variety of sound sources while controlling their levels on the mixer. The more you can preset—start and end points, sound levels, and so on—the better. This is where the above-mentioned SunRize audio boards can come in handy. Rather than deal with 35 separate sound-effects cues that each need to be edited and triggered, you can use either *SunRize's* AD1012 or AD516 to record and edit all the sounds into one longer multitrack digital sample. The **AD1012** board (\$595) works in mono, with 12 bits of resolution and four discrete tracks. The **AD516** (\$1495) is an even higher-level unit, providing stereo, 16

bits, and eight tracks. Both boards have variable sampling rates, including 44.1 KHz CD level. Both have SMPTE in and out ports, meaning they can be precisely timed to the time code on video, which hopefully is also running the sequencer. (For more detailed information on these boards, see the review on p. 18.)

ALL IN THE MIX

The goal of the final audio mix is to have each element in its proper balance, audible and clear when necessary, no matter whether its level is high or low. It is worthwhile taking the time to study the sound score of *Apocalypse Now*, by the director's father, Carmine Coppola. The sounds of slowed-down helicopter blades, distant thunder, exploding munitions, engine rumble, and deep bass synthesizers all blend together; suddenly, the viewer becomes aware of the sound, realizing that it has been continuous for several minutes.

Sound mixing is an art. Study hard while you practice, and remember: Even the best don't get it right on the first try. Keep track of all the EQ, pan, and level settings for all aspects of each trial mix so you can fine-tune each successive attempt rather than start all over again from scratch. And keep in mind that most of your viewers will see and hear your work on the tiny mono speaker of their television sets. Always check your mix under those conditions.

Listen and look carefully. Aspire to the best technical quality your equipment can deliver. Insist on solid content. Unless you have something to say with your work, no one will be watching. ■

Michael Hanish uses an Amiga for video, graphics, and music, with both his performance group and his adult literacy students. He writes frequently on audio and video topics. Write to him c/o AmigaWorld Editorial, 80 Elm St., Peterborough, NH 03458.

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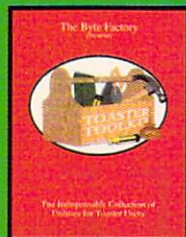
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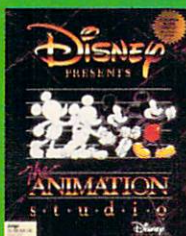


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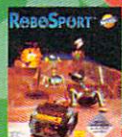


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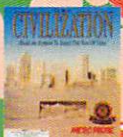
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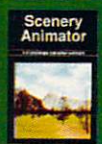
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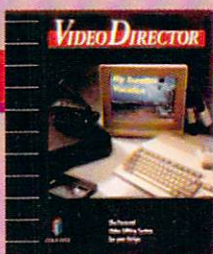
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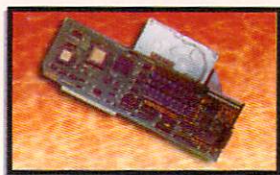
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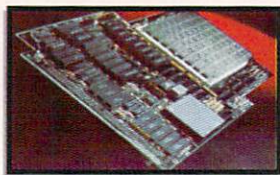


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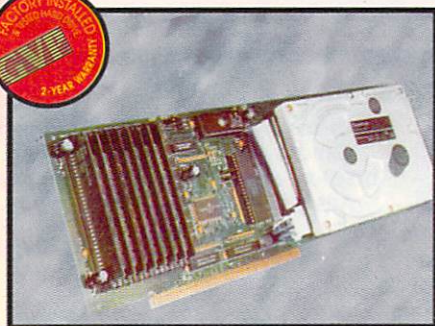
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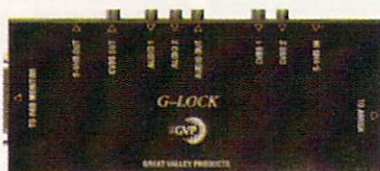
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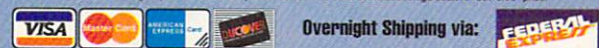
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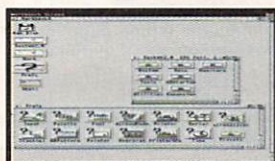
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AJ93

From p.26.

100MB hard disk over to a new file compressor is quite a tall order. (Incidentally, I tempted fate for over a month by using GigaMem with my Power-Packed hard disk with no adverse effects.) Finally, GigaMem is not (yet) compatible with the 68040, so my recent upgrade to the Amiga 4000 has meant leaving this worthwhile utility behind.

—Dave Johnson

CrossDOS 5.0 Plus CrossPC

Consultron, \$59.95.

Hard-drive installable.

Not copy protected.

2.0 compatible.

Accelerator compatible.

Minimum system: 1MB RAM.

Recommended system: 3MB RAM,
hard drive, accelerator.

**Reads and Writes MS-DOS disks and
emulates an IBM XT**

No matter how much you love your Amiga there may come a time when you have to exchange files with users of MS-DOS or Macintosh computers. How do you get the office PC to recognize the disk you created on your Amiga? If you have Consultron's CrossDOS 5.0 Plus CrossPC the answer is simple. You format an MS-DOS-compatible disk on your Amiga or run MS-DOS software without any additional hardware.

CrossDOS 5.0, included with version 2.1/3.0 of the Amiga's Workbench software, provides an easy and transparent way to transfer your work among computers capable of reading and writing an MS-DOS-format disk. In addition to MS-DOS computers, MS-DOS disks can be used with most Macintosh and Atari ST computers. CrossPC, which isn't included with the new Workbench, uses software to emulate an IBM XT compatible computer on your Amiga.

Moving CrossDOS Plus CrossPC to a hard drive is a snap with the included installer. In addition to placing the proper files on your hard drive, the installer automatically sets up an Amiga partition for CrossDOS/PC use. If you're familiar with previous CrossDOS versions, you'll really appreciate the ease of installation and use of 5.0.

TWO DRIVES IN ONE

CrossDOS 5.0 automatically provides each of your Amiga drives a dual person-

ality. Any disk inserted in your Amiga is checked for format and the proper icon is displayed on the Amiga's Workbench. If you insert an MS-DOS disk in df0:, for example, you could access it from Amiga software as drive pc0:, the CrossDOS equivalent of an MS-DOS formatted disk in drive df0:. File managers, such as DirectoryOpus (INOVatronics), automatically add the PC-drive equivalents to the list of available Amiga drives.

Unless your Amiga has a high-density drive, however, you're limited to using low-density 720K MS-DOS disks. The recently introduced high-density Amiga disk drives can use and format both 720K and 1.44MB MS-DOS disks. In addition, CrossDOS can also be configured for use with floptical drives.

CrossDOS also includes replacements for the Amiga's DiskCopy and Format commands. Format lets you easily format disks in either MS-DOS or Amiga format and sports a sharp new interface when run from the Workbench. The new DiskCopy supports copying MS-DOS disks between two drives. According to Consultron, these are the same commands supplied with WorkBench 2.1/3.0 and are provided under license to Commodore.

As I indicated, CrossDOS 5.0 is included with the latest versions of the Amiga Workbench. So, why buy CrossDOS 5.0 Plus CrossPC? Consultron states it will not support users who receive CrossDOS 5.0 with WorkBench 2.1/3.0. If you want future upgrades, you must purchase the stand-alone version. The most compelling reason for buying CrossDOS 5.0, however, is the plus of CrossPC.

Simply having access to files isn't enough when you need the special abilities of a program that runs only on an MS-DOS computer. If the software works on a standard IBM XT with CGA graphics, chances are excellent it will run on your Amiga under CrossPC. The program uses your Amiga's hardware to emulate CGA or monochrome video, IBM parallel and serial ports, and up to 740K of PC memory. You can use your existing floppy drives, mouse, keyboard, and hard drive to complete your emulated MS-DOS computer.

KEEPING PACE

While CrossPC runs on any Amiga, Consultron states that it "will optimize itself to run on accelerated Amigas using 68020, 68030, and 68040 CPUs." I tested CrossDOS on both a 68030-equipped Amiga 2000 and on a 68000-based Amiga 600. On the A2000, Norton's SI, a widely used measure of MS-DOS PC speed, clocked CrossPC at 1.4 times the

speed of a 4.77 megahertz XT computer. Using CrossPC at this speed is virtually identical to running a standard XT. On the other hand, SI rated it at .2 times the speed of an XT when run on an A600, a speed I found unusable.

With an accelerated Amiga, CrossPC is extremely useful. I created an MS-DOS partition on my Amiga hard drive and booted CrossPC with MS-DOS 5.0. I installed WordPerfect 5.1 and Library, and both operated as if running on a standard XT. The only MS-DOS software that produced problems were programs using BASIC and Microsoft's Flight Simulator. Both suffered from a lag between user input and software reaction, rendering them unusable with CrossPC. Windows and Windows-based software require an AT 800286-based PC to operate properly, so I did not attempt to run Windows under CrossPC.

CrossDOS 5.0 Plus CrossPC is high on my list of must-have Amiga utilities. If you use multiple computer platforms, you'll wonder how you got by without it.

—Bob Eller

TRUE PRINT/24

ASDG, \$89.

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2.0 compatible.

Accelerator compatible.

Minimum system: 1MB RAM.

Recommended system: 2+MB RAM.

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and poster printing**

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True Print/24 provides control over the full 24-bits when printing to a color printer and 256 shades of gray when outputting to a black-and-white printer. Without this program, standard Preferences printers produce 12-bit (4096 colors) and four-bit (16 shades of gray) on color and black-and-white printers, respectively. The results on my LaserJet II ▶



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(black-and-white, 300 dots per inch) and PaintJet (color, 180 dpi) were outstanding, far surpassing standard printing.

BIG IDEAS

Additionally, True Print/24 lets you print your images in poster sizes up to 99 inches by 99 inches. It automatically scales and tiles the image on as many pages as necessary, which you can then join to create your poster. If your printer supports fan-fold or roll paper, you can create seamless columns of the picture, making assembly even easier.

The installation is very simple. The thorough, properly-indexed manual even comes with a tutorial to assist you in understanding the interface.

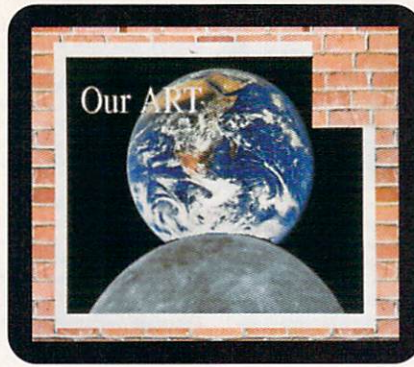
There is only one interface screen. On it, the image is represented by a rectangle with eight sizing boxes around the perimeter. First, you load a standard IFF image, then simply scale it either with numerical entry or by dragging the mouse over one of the sizing boxes. You can keep the aspect ratio of the image or distort it. The program intelligently adjusts the pixel aspect ratio of the image to the aspect ratio of the printer, if requested, so that your circles will still look like circles when printed. The entire print area, including rulers, is shown with a rectangular grid representing the number of pages in the entire poster. As a convenience, the printing status is continuously updated.

True Print/24 provides 11 dithering patterns; four mask sizes; and control over brightness, contrast, gamma balancing, red, blue, and green balance, and color correction. The specific dither pattern and mask size that are appropriate differ with the type of image and the size of the output. With 38 combinations, however, I am sure you'll find one that works. There is even an ASCII dither that prints grayscale images in up to 32 shades on daisy-wheel printers. You can also elect to print the picture in horizontal or vertical orientation, whichever uses fewer sheets of paper.

My only criticism is that you are not shown a representation of the image. The program assumes that you selected the right IFF file. This sounds rather basic, but if you were rendering a 3-D image to a 24-bit file but did not have a 24-bit display device, you would have to convert the file in another program to see even a representation. It would be more convenient to see a thumbnail or grayscale image rather than just a rectangle.

LOOKS FAMILIAR

I recommend purchasing True Print/24 only if you do not own or plan to buy Art



True Print/24 prints posters in sections that you can later assemble.

Department Professional. The program offers the same capabilities as ADPro's PrefPrinter Saver option. True Print/24 is designed as a low-cost alternative for those who need these printing abilities alone.

—Steven Blaize

NAKED UP INTERFACE

Pre'spect Technics, \$49.50.

XPANDER CHASSIS

Cev Design, from \$129 to \$279.

A500, A1000.

External Expansion-bus connection.

Installation: Moderate.

Adds Zorro II expansion slot for using A2000 cards.

Tired of seeing your Amiga 1000 sidelined in the expansion game by its lack of slots? Take heart, CeV Design and Pre'spect Technics offer the equipment to let A1000s use the wealth of A2000 cards available. Pre'spect Technics is marketing an expansion slot called the Naked Up interface, and CeV Design has clothed the same interface in a box and is selling it as the XPander Chassis. This board translates the information from the A2000 cards to the standard used by the A1000 or A500 bus, while taking care of bus noise to eliminate the problems of previous expansion chassis.

The XPander Chassis comes in multiple configurations of one or two slots, with and without pass-through and a power supply, and up to four drive bays. The Naked Up is a bare board without a case, hence the name. The XPander Chassis provides a case to protect the board from dust, vibration, and young children. Enclosing the board also prevents emissions of excessive radio frequencies, which can interfere with your television. (Pre'spect

Technics said it has put two Naked Ups together without significantly disrupting a television signal, but that using three did cause interference.)

PRESS HERE

Installation of either is simple if you're comfortable handling circuit boards. Pry off the cover from the Amiga's bus (the right side of the A1000, the left of the A500), press the board's edge connector onto the bus, and slide it as far as possible. If you're using the Naked Up on the A1000, you will need to find something to put under the interface to support it; the bus is about two inches above the desktop. (Also, be careful not to bump and disconnect it.) The legs on the XPander Chassis keep the board at just the right height.

The A500's bus is even with the desktop, so there's no problem with supporting the Naked Up, but be sure that no metal touches the board's exposed portions. Power is a different matter on the A500 with its notoriously weak power supply; I tried using the XPander Chassis with a friend's A500, but apparently the power supply must be connected to the card directly. I had no such problem with the A1000 because its power supply was able to keep the bus supplied.

The XPander Chassis' case is long enough to hold a full-size Amiga 2000 card upright. The size causes the device's one drawback: It obstructs the A1000's mouse and joystick ports. As a remedy, CeV Design cut two holes in the case to allow access to both ports and another hole on the bottom of the case to let the cables through. I purchased a GVP HC8 series II SCSI controller with two megabytes of RAM and a 52MB Quantum hard drive and installed it in the XPander Chassis on my A1000. The card did not seat properly because of a bracket on its end that normally fits into the rear of the A2000 to hold the card steady. I had to bend the bracket with a pair of needle-nose pliers so that it rested against the bottom of the case; a slit on the floor of the XPander Chassis to insert such brackets would be a welcome improvement.

SOLID PERFORMER

I started up the Amiga and watched with amazement the speed with which the system booted from the hard disk. I've used this combination for four months and have yet to have a problem. The drive helps speed up the system one hundred percent or better compared to running software with floppies. The added flexibility of a bus pass-through makes the Naked Up and the XPander Chassis even more useful because you can chain

at least two together and add, for example, a graphics card and a hard card, or a hard drive and a Bridgeboard (the XT and AT models work fine, but you need additional RAM to use the A2386).

Both the Naked Up and the XPander Chassis offer capabilities A1000 owners have dreamt about since the A2000 was released. The prices are reasonable, and while the aluminum case of the XPander Chassis does not match the exterior of the Amiga, its usefulness more than makes up for its lack of aesthetic value. I heartily recommend the XPander Chassis to A500 and A1000 owners who want to expand rather than abandon their systems.

—Michael Savoie

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DP IBM ANALOG INTERFACES

DigiPrint, Inc., mouse or joystick, \$9.95 each.

All Amiga models.

External, mouse port connection.

Installation: Easy.

Adds analog joystick and mouse compatibility.

If you are a flight-simulator enthusiast, you have probably noticed that most new programs support analog joysticks as well as the more familiar digital type. Analog joysticks use potentiometers instead of switches, allowing for smoother action and a more natural control feel.

Unfortunately, you can't simply plug analog joysticks into the Amiga and take off. Until now, you had to construct an adapter to connect the proper pins from the joystick to the correct pins on the Amiga. Because not all programs support analog joysticks, you often had to switch from one joystick to another, risking serious damage if you forgot to turn your computer off. Thankfully, two companies now offer ready-made solutions.

The DigiPrint Inc. option, the DP IBM Analog Interface, is a 12-inch cable with an Amiga connector on one end and an IBM connector on the other. Inside the IBM housing is a small circuit board with four capacitors connected to the potentiometer lines from your joystick. A three-position switch on the top of the housing allows you to vary the amount of added capacitance, giving you three different control sensitivities. The

Continued on p.84.

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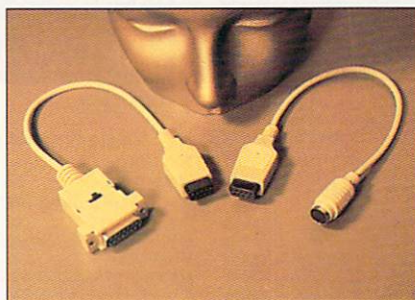
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From p.81.

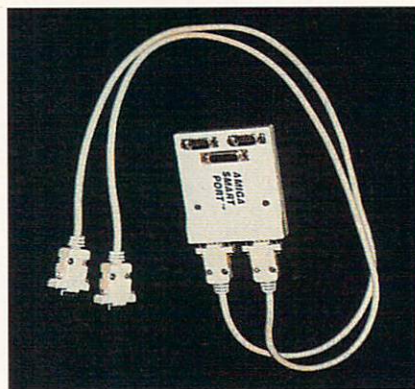
instruction sheet notes that the interface works with most IBM analog joysticks and warns that the Kraft Thunderstick and the Thrustmaster do not work properly. DigiPrint recommends you call to check compatibility if you're in doubt.

The company also offers the DigiPrint IBM Bus Mouse Interface. With it, you can use an IBM mouse in place of a standard Amiga mouse. All mice are not equal in the IBM nest, however. Serial mice plug into the computer's serial port, while bus mice connect to a separate interface card. Be sure to use an IBM bus mouse with the DigiPrint adapter. Both DigiPrint interfaces carry 90-day warranties.

If DigiPrint chose the Hyundai approach, InterACTIVE Digital Devices Inc. took the Cadillac route with the Amiga Smart Port. This small device attaches to your mouse and joystick ports via supplied three-foot cables. You then connect your mouse and joysticks to the Smart Port. You can attach up to two IBM-type analog joysticks (with an optional Y cable), in addition to an Amiga mouse and a digital joystick. The Smart Port senses which device you wish to use in a particular application and automatically switches itself to connect the device to your Amiga's ports. It also includes protection circuitry to prevent damage to your computer if a joystick potentiometer fails.



DigiPrint's IBM analog joystick and mouse adapters.



Smart Port widens your control options.

The well-constructed Smart Port is three inches wide, four inches long, and

three-quarters of an inch thick. Two LEDs tell you at a glance which device is currently selected. Because of variations among joystick potentiometers, the Smart Port also has calibration adjustments. You use the included calibration program and a small screwdriver to adjust sensitivity to your particular joystick.

Installation and adjustment took about ten minutes, with most of that time spent fine-tuning the sensitivity. A couple of self-adhesive Velcro mounting strips, a 15-page manual, and a one-year warranty complete the basic Smart Port package. Options include various cables and a rudder-pedal adapter (\$7.95).

Which is the best device? That depends on your budget and future plans. They both do the job of connecting analog input devices to your Amiga. The DigiPrint product connects only half the lines in the IBM connector, which means there is no way to add a second analog joystick. If you get a new game that uses rudder pedals or a separate throttle control you will be out of luck. On the other hand, the difference in price goes a long way toward the purchase of a top-quality analog joystick. Personally, I prefer the convenience of being able to leave both types of joysticks attached to the Smart Port and not having to switch cables behind the computer.

—Rob Hays



BACK TALK

CANDID RESPONSES TO AMIGAWORLD REVIEWS

OPALVISION ONWARD AND UPWARD

Thank you for the favorable review (Dec. '92, p.20) of our OpalVision Main Board. We're pleased that OpalVision is receiving such positive reviews in publications around the world, but want to ensure that readers everywhere have current information about the latest OpalVision developments.

In summing up his OpalVision review, Sheldon Leemon reminded us of some of the challenges every new product faces: "With some software updates, third-party programming support, and support for all the hardware features (such as double-buffered animations and 8- and 15-bit display modes), OpalVision would become a real force in the Amiga graphics market."

Centaur Development is demonstrating its deep commitment to the improvement and enhancement of the OpalVision system. In the short time

since Mr. Leemon wrote his review for *AmigaWorld*, we've delivered on everything on his wish list:

1) *Software Updates*: We've already updated the OpalVision library and added numerous features to OpalPaint (full implementation of ARexx; alpha-channel with full 32-bit brushes, images and painting; multiple color gradient saves, real-time image-processing previews; automatic tolerance range setting; brush feathering, and so on.)

2) *Third-party software support*: Amiga developers have responded overwhelmingly to OpalVision. We've already released the loader/saver for ASDG's Art Department Professional and Morph Plus. Adspec Programming rushed to put OpalVision support in their first release of Aladdin 4D. Black Belt's Imagemaster will have OpalVision support by the time you read this. Scala's MM200 and InfoChannel are past beta stage as of this

writing. The list goes on and on.

3) *Support for the hardware features*: I've mentioned our implementation of the hardware's alpha channel and real-time image processing. Recently we released OpalAnimMate, an animation player allowing high-speed 8-, 12-, 15-, 18-, or 24-bit animation playback from RAM or hard drive, at speeds of up to 60 fps. It's compatible with every Amiga ray-tracing program, it works in six different modes and features selectable screen sizes. Its delta compression feature creates small files and fast playback speeds.

As you can see, we've already exceeded all of Mr. Leemon's requirements. We believe OpalVision is the powerful force in the Amiga graphics market and the *de facto* 24-bit standard for graphics and video professionals.

John Sievers
General Manager
Centaur Development ■

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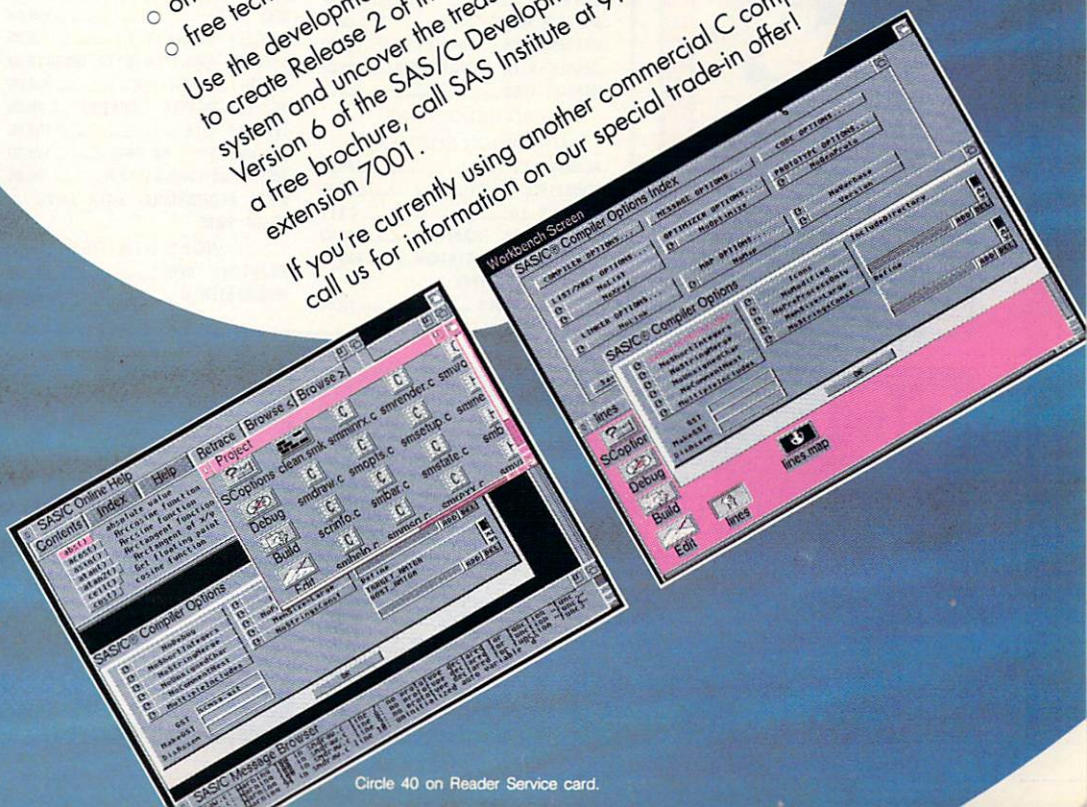
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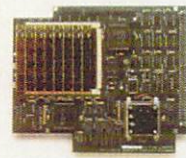
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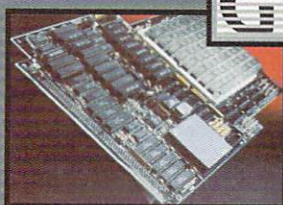
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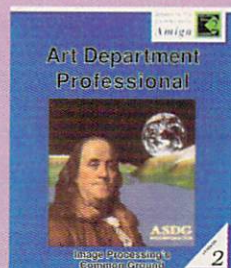
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The Game Preserve

SHADOW OF THE BEAST III

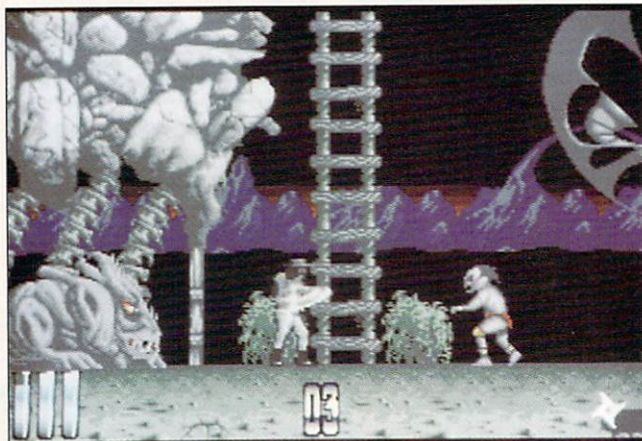
By Peter Olafson

PSYGNOSIS HAS FINALLY mastered its Beast. **Shadow of the Beast III** (\$59.99), the last of its line, finds the puzzle element of this respected arcade-adventure series in the ascendant, most of the flaws in the earlier games excised, and playability at its peak. I couldn't wish it any better.

As the designers note in the manual, *Beast III* is basically a marriage and a refinement of the first two games. All the gorgeous, shadowy graphics, the moody, heart-touching music, and the fast, deep parallax scrolling that caught your attention back in 1989 are here—only larger, deeper, darker, and more detailed. The Reflections design team obviously has been studying the competition, and the new game abounds in delightful small touches—be it a procession of bouncing chromed balls or an erupting volcano in the background. (And what backgrounds; these new statues reach up into the sky.)

Beast II was often perceived as being impossible to complete without the "Ten Pints" cheat. Here, some of the edge has been taken off the difficulty; now it increases gradually over the game's four levels—two of which you can reach at the outset.

The levels are also more logical than ever. For instance, right at the beginning, there's a broken-down battering ram. A bit further on, over a lever-triggered bridge, you can retrieve its missing wheel, then push the ram to a locked door and let it do its thing. Pressing on into an apparent dead end, and swatting the swarm of insects that rises behind you, you drop into the alcove from whence they came and destroy an adjacent trigger. That,



Shadow of the Beast III: The best saved for last.

in turn, opens a chute down into an apparently inescapable room with switches low and high. Throw the lower, and the room begins to fill up with water. What to do? Well, there's that table in the next room to stand on, but right now you're doing a wonderful job of drowning. The game keeps you looking and thinking, and there's also room to explore and experiment.

This'll sound like damning with faint praise, but it's not an irritating game, either. *Beast II*'s mechanics rubbed a lot of people the wrong way; perhaps most loathed was the need to watch the lengthy intro every time you died (which was frequent). *Beast III* has a separate introduction disk and a "suicide" key that permits escape (without rebooting) should you find yourself trapped. ▶

Last month, we featured cheats. This month, we'll add a lie: mine.

The stroll through the critical areas of Origin's *Ultima VI* promised for this issue has been kicked back a month to make room for a clamoring pack of back doors and service entrances that didn't make it into last month's special games edition. I've even added a handful.

- There's a level select hidden in *The Blues Brothers* (*Titus*, \$49.95). To reach it, type HOULQ on the character-selection screen. If the black background changes to maroon, the fix is in. Hit 1 to 6 to pick a level, and then the space bar.

- BSS Jane Seymour—the European version of Konami's role-play-

CRIB NOTES By Peter Olafson

ing game *Spacewrecked* (\$49.95)—uses the following level codes: Slumber, Interest, Bulkhead, Showroom, and Mushbash. Betcha they work on the US release, eh?

- This one isn't especially new, but I've had so much fun with this dumb old game that I thought I'd pass it on anyway. Ever wondered what's at the end of that vertically scrolling Ikari Warriors clone you've been playing on and off for five years? If that clone is *Leatherneck* (*MichTron*, \$19.95), now you can find out. Start 'er up, type CUTHBERTNECK—what the heck is that?—and press F3. Your little

troop is now safe from enemy fire, but can still very effectively shoot each other in the back, as my brother and I are wont to do when playing this one.

- Virgin's belly-busting caveman Chuck Rock has a whole rash of cheats. Weird cheats, too. On the title screen, press Esc and then type FAST AINT THE WORD, UNCLE SAMS, ITS FAIRY BOWBELZ, SHE LOVES CLEANING WINDOWS, or MY LIFE IS A DREAM for an infinite supply of energy. If you type MORTIMER during the game, you can use F1 through F5 to select stages of each level. Or type TURN FRAME

or TURN FRAME LEE with the Caps Lock key depressed, and you can use 1 to 5 to skip levels. Try ESTRANO to fly.

- Pause U.S. Gold's *The Godfather* (\$49.95) with the Help key, and type in PIZZA HUT for infinite energy.

- Now, this one isn't just a cheat; it's downright dishonest. In Wayne Gretzky Hockey (*Bethesda Softworks*, \$49.95), while heading toward your opponent's goal and in possession of the puck, press ? to remove the other side's goalie from his net. (He's still in the game, however, and at a forward position, so you may have more trouble than usual holding onto the puck.)

- Typing in RISEN FROM THE DEAD during *Night Breed* (Ocean, \$39.95) ▶

To locate vendors of the games reviewed, see the "Manufacturers'/Distributors' Addresses" list on p. 108.

Circle 52 on Reader Service card

Qualms: The beat-'em-up aspects of the original *Beast* have made a comeback, and the character interaction from *Beast II* is missing. Creatures are only for killing. The designer may have overdone it a bit with the help feature. (The game throws up "wrong way" signs if you head off in the incorrect direction—unnecessary because the game won't let you proceed in the wrong direction.) The game still won't go on hard disk. And I suspect that the easier *Beast III* won't have as long a shelf life as *II*, which some people are still slaving over two years later.

Then again, you won't be throwing this one against the wall in frustration, either; I'd bet you can actually finish it inside a month or so. *Beast III* is playable. It's logical. It's beautiful. What a great way to go out.

LORDS OF TIME HEIMDALL

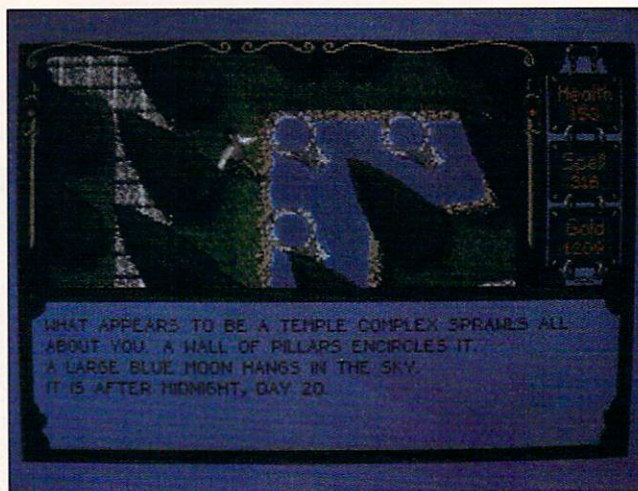
By Peter Olafson

SOME GAMES ARE so imbued with life that they just won't die. For instance, after five years, *Faery Tale Adventure* still sets the standard for excellence in arcade role-playing games on the Amiga. So, it's something of an event when *Hollyware*—which published FTA in its previous life as *MicroIllusions*—brings out a game that recalls the earlier classic in both format and style.

Lords of Time (\$49.95) may not have the presence of its illustrious predecessor, but it has even greater depth.

They do have a lot in common. Like FTA, LOT is an angled-down, single-player game with lots of magic, items, and filthy lucre scattered about a giant and varied landscape. The cutaways of the insides of buildings are handled in a similar way, and once again you're bound to find interesting things in the fireplace. And in combat, your little man (not so frail this time) stands there wagging his weapon like the tail of a dog that sees you eating lunch.

And yet, if you're expecting FTA II, you'll be disappointed at first. The dusky graphics, while nice, have neither the same



Watch where you wander in *Lords of Time*.

precision nor sparkle; for the longest time I thought the roads were supposed to be cliffs. The music, pleasant at first, tends to meander and a single theme plays ad infinitum. The story is nothing special—it's the old dimensional-rift trick—and you start out without an inkling of where you are.

Given time (and a judicious saved-game policy), however, it'll begin to work its charms on you. LOT uses different terrain elevations to excellent effect; mountains may be an inconvenience but not a barrier. Forests can slow you down and in places stop you in your tracks, and I found the consequent winding course through the trees far more realistic than the beelines permitted in FTA.

The half-screen, close-up view makes the world seem even larger than it is. And, naturally, it's big as the *Ponderosa*, with lots of make-straight-for-ya monsters that want killing (even the

Continued on p. 96.

CRIB NOTES

gives you infinite lives.

- Just stay put on Level One of *Marble Madness* (Electronic Arts), and see what happens.

- Here's a wild one from *Damocles* (Novagen, \$44.95)—Paul Woakes's followup to *Mercenary*. On Midas, in a pyramid at 577-341, you will find a magic crystal. However, you can't use it until you get the book from the trader (13-5) in Eris' capital city. Once you do, read it, and you'll be granted a wish. Save your game, and then try out the following:

- 1) I wish I had more time.
- 2) I wish I could receive 1,000,000 credits.
- 3) I wish I had a cheese sandwich.
- 4) I wish the universe was more colourful. (Note the British spelling.)
- 5) I wish I know how to use author's computer.
- 6) I wish I had *Mercenary 3* now.

- MEACULTA should give you infinite energy in *Darkman* (Ocean,

\$19.95) if typed in during play.

- Here's a slick trick from *MicroProse's Formula One Grand Prix* that should find a happy home in its US equivalent, *World Circuit* (\$59.95). On a last lap of a race, hit the pits, put on the brakes, and press Esc to quit the race and then accelerate the passage of time. You should win the race if you were close to the lead when you dropped out.

- You could play *Lemmings* (Psygnosis, \$49.99) to the end without finding this code word. Type FQUIGGLY on the title screen to stop the li'l guys from doing themselves in.

- Typing SORCERY sometime before the password screen—it doesn't say where—in *Konami's Gods* (\$39.95) allegedly supplies you with infinite energy. Another cheat—a rather involved one—is found on Level 2. Get a shield, a magic potion, three fireballs, and three stars here, with the rest of your dosh going to food and health. Collect the gems, get a key, and

start toward the exit. Before going down the final ladder, be certain you don't have enough energy left to survive contact with the bandits who will appear at the bottom, drop your potion, descend, open the door, and wait. When they touch you, push up on the joystick. According to the cheat, you may die here, but the bonus goes absolutely bonkers and the game restarts on *World Two* with 28 extra men and millions of points.

- The key combo Left-ALT-CTRL-Shift-F5 warps you to the next level in *Hare Raising Havoc* (Walt Disney Computer Software, \$49.95).

- It's reported that something "interesting" occurs in *Electronic Arts' Keef the Thief* (\$19.95) if you go up into the treehouses to the left side of the map, wait for a commercial-like screen to appear, and then make a spell from Rhino Horn, Black Pearl, and Narcissus Root.

- Try 1 KILLING as your mission code in *Konami's The Killing Cloud* (\$49.95). This is supposed to give

you 28 nets and 29 PUPS.

- Evidently, holding down Shift and 4 (the \$ key) while on the main continent screen provides you with loads of money in *Railroad Tycoon* (MicroProse, \$59.95).

- There are reportedly a couple of ways to kick your army into high-speed inventing in *PowerMonger* (Electronic Arts, \$49.95). Tell your captain to invent, pause the game, push the game speed to full, wait a while, and resume the game. It seems the army keeps inventing during the pause. Another way is to dispatch an "invent" order and then, when your troops take off to implement it, click on the icon again. This may well generate a catapult immediately, but use it with care. It's available only once per island.

Well, I see the little clock on my Amiga says it's July 7, 2007, so I guess I'm either out of time or batteries. Next issue: A cure for the Ultima Sicks.

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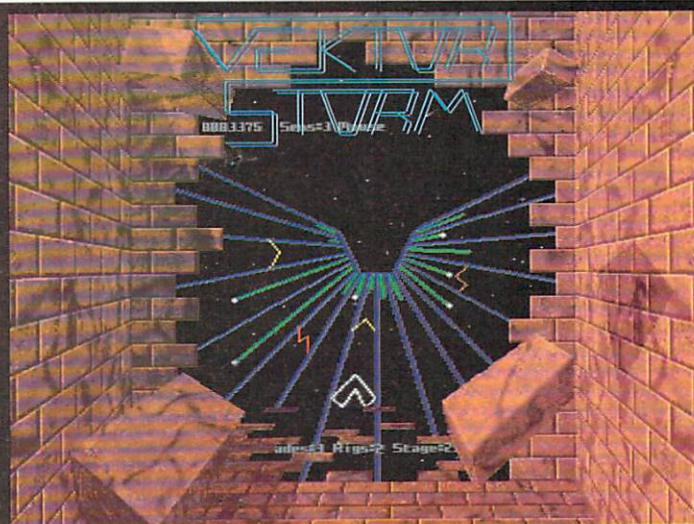
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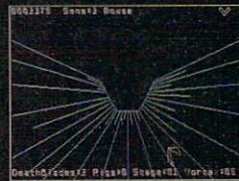
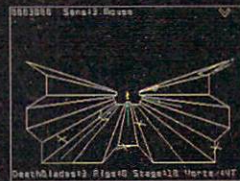
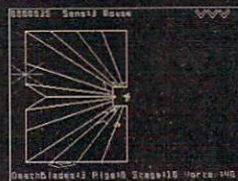
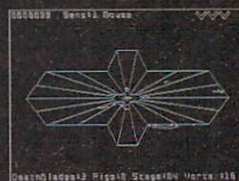
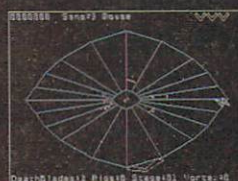
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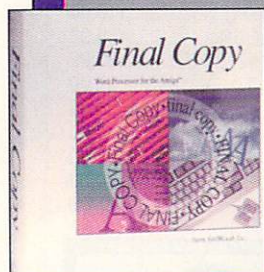
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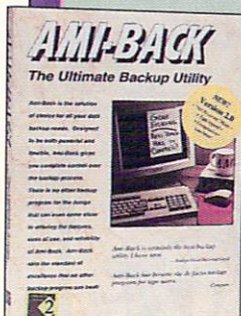
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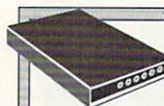
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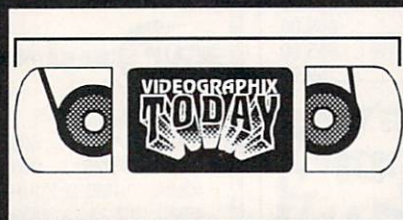
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From p. 90.

birds bomb you with rocks) and lots of buildings and dark and curious places to visit. Unlike FTA, there's also a good deal of character interaction—albeit of a rather prescribed variety—and with experience and good spell-ing you'll begin to discover this isn't as foreign and dangerous a place as you suspected. (Little things like the map window that surfaces when you cast a particular spell go a long way.) There's the world you're in, and then there's a second world that's gradually revealed.

And although LOT comes on only two disks, it goes on hard disk. It does take some getting into and I can't claim that designer-looking-over-your-shoulder feeling from FTA, but this is an admirable followup. You'll love it.

Heimdall (*Virgin*, \$39.99) doesn't project itself beyond the screen, either. It's just an incredible amount of well-done fun.

For starters, this Norse saga has the most delightful character-creation scheme around. You can determine your stats by your skill in three arcade segments: hurling axes at a girl's radiating pigtailed, catching a wild boar, and battling shipboard baddies. It's enormous—both in scope (three extensive island chains) and in the sheer size of the huge, full-screen isometric graphics. The game seems to loom up to you from the monitor; it occupies your field of vision in a whole new way.

Combat is handled much as in the original *Elvira*, with the timing of your weapon swipes the key. The mechanics of movement and item management in your six-member party are blissfully simple. Traps and puzzles abound—most of the latter just a matter of knowing which item to use where—and it's a joy to play...in most respects.

The only setbacks are the clown-like character graphics, the absence of a practice mode for the attribute-setting arcade bits, and the lack of a hard-disk installation option. If this game had presence, we'd never know; even on a two-drive system, there's simply too much swapping among the five disks for *Heimdall* to achieve an even flow.

Even so, I recommend it: The game has too much fun in it to be suppressed by a technical mistake. On the strength of games like *Heimdall* and *LOT*, it may just be time to adjust that arcade-RPG standard up a notch.

AIR SUPPORT

By Jeff James

A SIMULATION OF 21st Century warfare, **Air Support** from *Psygnosis* (\$59.95) is one of the most difficult Amiga games ever. A challenging mix of strategy and simulation elements, *Air Support* thrusts you into the role of a military commander with a plethora of hi-tech military hardware at your disposal.

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Continued on p. 99.

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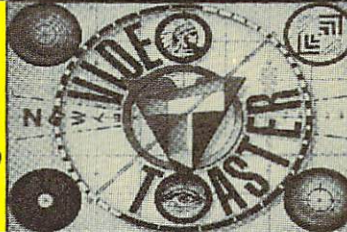
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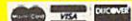
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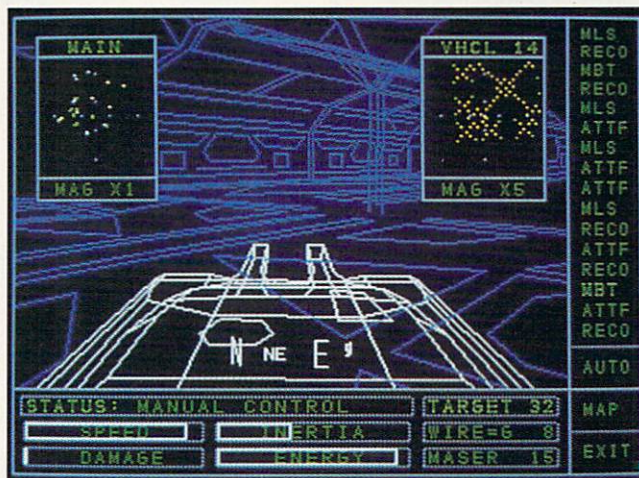
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GAME PRESERVE

From p. 96.



You'll need to fly every training mission to master Air Support.

plex, complete with factories, generators, missiles-launchers, and radar stations. After you're gently introduced to all the gaming facets in the training missions, the real missions—the frustratingly difficult ones—begin.

In terms of graphics, Air Support takes a small step backwards from the hard-edged beauty found in most other Psygnosis titles. Rendered almost entirely in wireframe, Air Support sacrifices aesthetically pleasing filled-polygon graphics for play speed. One bonus to using wireframe graphics is Air Support's slick 3-D mode—using the supplied red-and-blue lens glasses, you can zoom around the gamescape in three dimensions for an added sense of realism. The program makes extensive use of the Amiga's synthesized voice, which announces the destruction of your enemies and your ships, among other important events. Given the difficulty of the game, you'll be glad to have the vocal assistance. Another big help is the included 67-page instruction manual and detailed keyboard reference sheet.

Air Support follows the lead of most other Psygnosis titles and does not support a hard drive. The game's a trifle sluggish on an unexpanded A500, but owners of accelerated Amigas should see a noticeable speed increase.

After the first dozen training missions, you'll realize that Air Support is definitely not for novices—rookies are in for a brief and bewildering playing experience. Air Support has more depth and detail, however, than I've seen in an Amiga game for quite some time. If you're a seasoned armchair general looking for the ultimate gaming challenge, try Air Support.

SHORT TAKES By Peter Olafson

CRUISE FOR A CORPSE

It looked for a while as though Cruise for a Corpse (U.S. Gold, \$54.95) wouldn't surface stateside, but we've finally been favored with the third in the series of splendid Delphine graphic adventures that started with Future Wars and James Bond: The Stealth Affair. Surprise: It's easily the best of the bunch.

Cruise is bigger than its predecessors (five disks, full-size characters, and none of those one-pixel objects from Future Wars) and yet smaller—confined as it is to a sailing ship in the Mediterranean. Your host has turned up dead, and you're a police inspector with a strong sense of duty. ▶

MORE SHORT TAKES

There's plenty to inspect. The ship's been done up in grand detail in graphics rich as chocolate cake. Every object, however minor, seems to have been graced with a description. Every character seems to have something to say...but not quite enough. Damned if you couldn't cut the atmosphere with a knife. You won't solve this one soon.

One more thing: If the character in *Cruise* looks vaguely familiar to you, it's because it's the same sort of smooth-moving polygon creation used in *Delphine's* subsequent arcade-adventure hit *Out of This World*. Watch him walk straight into the screen while on deck; it'll charm you out of your tree.

HUNTER

A superb 3-D filled-polygon wargame, *Hunter* (Activision, \$39.95) is basically a mission-based *Midwinter*: a thicket of tasks to perform, a huge selection of vehicles—from bicycle to jeep to speedboat to helicopter—smooth-as-silk movement, a clean mouse/joystick interface, and some of the richest colors I've ever seen on the Amiga. It feels as though there's electricity in the air. Just look at that sky.

The third-person perspective's a bit unusual—you watch your polygon soldier in the middle distance—but it's not difficult to adjust, and in no time you'll be whizzing over land and sea on missions of sabotage and assassination.

It doesn't have quite the epic sweep of *Midwinter*, but in some respects *Hunter* goes *Midwinter* one better: You can go inside buildings in 3-D mode and collect objects. (Alas, the game does seem prone to hang while exiting said buildings. Just remember where the door is, and be emphatic in your movements.) What can I say? This *Hunter* has claimed a victim: moi.

MAGIC POCKETS

Call *Magic Pockets* (Konami, \$39.95) a cute version of *Gods*. They're both by the Bitmap Brothers programming team, and they're both glossy and elegant platform games. This one's certainly the more arcade game-like, however—the wee Bitmap Kid waddling his way through all manner of attractive landscapes, dispatching little cyclones to daze and destroy baddies, picking up loose candy, and using an assortment of delightful items. (A TV shows you a broad picture of the terrain around you, and the laser-equipped helmet certainly cuts down on the small talk.) Lots of secret areas to break into as well. This isn't just another platform game. It's a keeper.

A LEAD ZEPPELIN

I'm a great follower of budget games. It's like buying independent 45s in search of the next Nirvana. Trouble is, it's pretty hit or miss; for every Pearl Jam, there are at least a dozen sub-Sonic Youths. (Have you ever played *Pac Land*? Well, don't.)

Over here, budget Amiga software is a relative rarity. In Europe, as noted last issue, it's a whole way of doing business. Budget publisher *Zeppelin Games*, from the far side of The Pond, has sent us a packet of its recent stuff and...uh, well, thanks. It's easy to understand why these don't cost much.

Arnie (\$19.99) is probably the best of the crew. It doesn't star the hasta-la-vista guy you're thinking of, but the little soldier here certainly acts like him, willfully shooting everybody along his horizontal path. It's about as well done as a good *Shoot 'em Up Construction Kit* game turned on its side. Don't think; just keep pushing the fire button.

The European market is also infested with cute arcade characters with names like *Dizzy* and *Wonderboy*. Here's another one: *Blinky*, a ghost with shiny shoes and a gun (ahem). *Titanic Blinky* (\$19.99) features him wandering around the doomed liner shooting snails and stuff. Competent platform antics, but nothing that hasn't been done twice as well at twice the price.

Stack 'Em (\$19.99) is a decent spin on *Tetris*—what's that, the 209th?—and *Arcade Trivia Quiz* (\$19.99) is...well, just a trivia quiz. "Arcade" appears to figure in neither the game system nor the questions. The contestants make faces, but that shouldn't count.

BEAST BUSTERS

At least this one's good for nostalgia. This sort of scrolling shooting gallery was all the rage three or four years ago in the wake of Taito's *Operation Wolf* and still turns up now and then in such European games as *Line of Fire* and *Space Gun*.

On the plus side, there's a lot going on here. *Beast Busters* (Activision, \$39.95) scrolls horizontally, vertically, and in 3-D, and it sure does throw a lot of dead-eyed, blue-skinned creatures at you. These come apart very competently and disgustingly when riddled with bullets, and the game gives you a stack of credits, so you'll probably see more of BB than you ever saw of Capone.

On the minus side, the goings-on are rather too slow, there's very little use of sound, and the palette is limited. (All that pale blue makes BB look like a bad IBM port.) The gunsight doesn't show up very well, and much of the game feels samey. *Beast Busters*, you're no *Operation Wolf*.

THE NEXT ROUND

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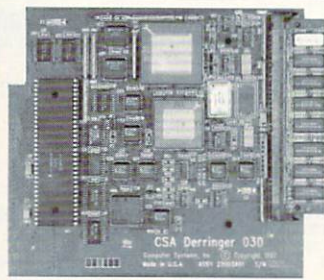
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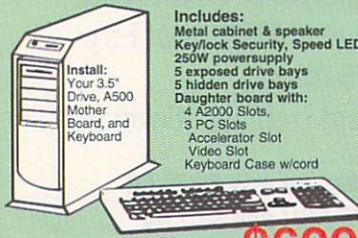
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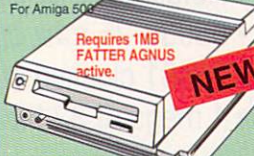
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HELP KEY

Will he solve the mystery of the disappearing drives...the case of the hi-res slow-mos...the menu quandry? Read on.

By Tim Walsh

DISAPPEARING DRIVES

Q. *I've tried for three years to successfully install Workbench 1.3 on two A2000s. When 1.2 is installed, the OS recognizes my C Ltd. hard disks, but install 1.3 and poof!—they vanish from Workbench. I've rewritten the startup-sequence with various mountlists, device drivers, bindddrivers, and Echo statements, all to no avail. I'm ready to give up, especially since C Ltd. is out of business. What can I do?*

Eugenia Schneider
China Lake, CA

A. Your problem most likely lies in the controller card, not the hard drive. Recently at the AW editorial offices, a hard disk on one of our older A2000s began spewing "Volume Not Validated" messages. Since it was an old 2000, I dusted off an original 2090 Install Disk. But, oddly, double-clicking the format icon *didn't* format the drive, but wiped out everything on it in about half a second, without even lighting up the drive's activity light—a bad sign!

Confounded, I popped the cover off and pried out the hard disk controller card. *Aha!* Some well-intentioned soul (a.k.a., yours truly) had swapped cards at some point and a 2091 was in place of the original 2090 controller. Formatting the drive with a 2091 Install disk resolved the mystery.

It's unlikely that your C Ltd. drives have one of the newer 2091 controllers. Forget about rewriting the startup-sequence and fiddling with mount-lists; rather, do what I did. Remove the cover from the A2000s and check the names and model numbers etched into each machine's hard-disk controller. No matter how old or rare the controller card, you can probably find the custom installation software necessary to cure the 1.3 installation ills. (Check dealers, user's groups, BBSs or on-line services.) If all else fails, and the cards are indeed incompatible with 1.3, you may want to consider getting a newer hard-disk controller complete with its

software. And if so, I'd take the opportunity to forget 1.3 altogether and upgrade both machines to 2.04.

HI-RES DOLDRUMS

Q. *My A2000 is equipped with 2.04 ROMs, ECS, four megs of fast RAM, and a 40MB SCSI hard drive. When I use the 16-color hi-res modes of the the new Workbench, the machine slows almost to a standstill. (My old A500 even runs faster). I thought the Fatter Agnus and extended RAM would boost performance, not hinder it. I've tried to reconfigure my hard drive, and I've customized the buffers and caches, but the system still drags. I know accelerators are the answer, but they're too expensive. I thought more RAM would speed things up.*

Damon Gibson
Clovis, NM

A. You've happened upon a fact of Amiga life that all users of AmigaDOS 2.0x soon discover: Enhanced screen modes slow down screen refresh rates. While variable system configurations also affect performance, no matter how much RAM you pack into an unaccelerated machine, the speed at which the system operates is virtually unchanged.

When using pre-2.0 OS software, few Amiga users are bothered by the speed difference between screen modes. Sure, screen updates on even unaccelerated machines equipped with Workbench 1.3 or earlier are slightly noticeable between interlaced and de-interlaced screens, but the flicker is usually more bothersome than the slower speed.

When 2.0 became available on the new A3000, everyone accustomed to working with 1.3 on the older machines noticed the speed difference in the hi-res modes, especially when working with more than eight Workbench colors. I recall thinking if the various 16-color Workbench hi-res modes of 2.0 slow down a fast 68030-equipped 32-bit machine, they would bog down a stock Amiga like a hayfield

would a push lawnmower. Still, while screen updates in the enhanced Workbench 2.04 modes exhaust the computer's resources, there are solutions.

Short-term band-aid advice: Make a quick trip to the Prefs drawer and set the palette for four colors, install the smallest screen font you can read, and use 2.04's ScreenMode Preferences to stay locked into the lowest screen resolution available; also, keep a minimum number of windows open on the Workbench at any given time, limit your multitasking, and don't use more than one custom screen at a time. The best, and final solution, however, is to get a new or used 68030 or '040 card as soon as finances permit. With your Amiga running at 25 times stock speed, chances are slim you'd have any complaints about sluggishness, no matter what display mode.

WHAT'S ON THE MENU?

Q. *I've heard there are programs that will allow me to create my own pull-down menus. Where can I find them?*

Noah Meyerhans
Skowhegan, ME

A. Next to a cool drink on a hot day, nothing makes using an Amiga more pleasurable than a good menu enhancement program. Best of all, most are available as shareware on the nets, BBSs, and PD disk collections. Check out General Menu V2.01, a CanDo utility for launching executable programs with a click of a button, or, if C programming's your thing, look for MenuC v1.0, which has the structures needed to create both 3-D menus and screen gadgets. Tool Manager 2.0 lets you easily add items to the Tools menu under AmigaDOS 2.04, add Appicons to the Workbench, and create screen docks for icons. My favorite is Steve Tibbett's ToolsX. It's the easiest, fastest way to add menu items and hotkeys to the 2.0 Workbench Tools. ■



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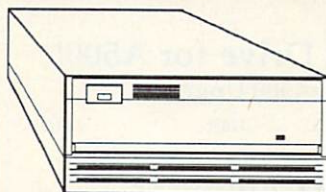
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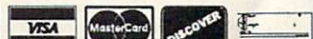
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AMIGA World Tool Chest

P51: The Intrepid You control a tank in the frozen arctic trying to rescue hostages. **P50: Grider** This useful utility will convert between the following graphics formats: Ham, E, TIFF, Targa, PCX, Neochrome, Degas, GIF and JPEG! **P49: Moria** This is a vast adventure game that will require hours of dedicated adoring to crack. You must traverse an absolutely huge world/dungeon to defeat forces evil. 1 Meg, harddrive installable.

P48AB: The A-64 Package This is a complete Commodore 64 emulator, updates saphics...everything (no fast loaders or timing-sensitive software). Works on Amiga with 1 meg. Two disks, counts as two.

P47: Chemesthetics This program will generate calotte models (3D full-color IFF models). Quite beautiful pictures of even the nastiest molecules.

P46: Drafting Mcad and Plags are both object-oriented drawing/drafting programs (created graphics) with all the projects you need to create any object. **Landscape** is a CAD (Computer Aided Design) program for laying out landscapes; after layout, the painter will create a stylized 3D representation of your landscape.

P45: AmigaDOS Replacement Project (ARP) This is the result of a very ambitious project to completely replace all of the AmigaDOS C: commands (DIR, LIST, SIGN, INFO, etc.) with more powerful, feature-filled programs. These programs are compatible with your Workbench 1.3 counterparts, but also offer many more capabilities—including greatly enhanced wildcard support and more help for each command.

P44: MechFile is a role playing game where you control a giant robot and explore ruins, by or find items, fight against other robots and aliens you are also required to kill some tasnd complete missions.

P42: 3D Master Explore the world of 3D modelling with this high-powered software. Realistic realistic 3D images. 3D Master is perfect to get your feet wet in 3D. It requires some experimentation to get the most out of it. Req. 1 MB **P41: Sealence** Go on patrol in your nuclear Trident submarine and clear the seas of the vermin that pollute it. A complete simulation with all tactical weapons and sensitive systems.

P39AB: Catabomb A well done graphic dungeon adventure game. Discover the crests & treasures of the underground maze and try to stay alive!

P38: Virus Utilities VirusX, KillVirus, Virus-Memory Killer, VK360 and ZeroVirus!!!

Let your sleep at night knowing your Amiga is 100% virus-free.

P37: CheckBook Accountant This program has full budgeting/transaction record-keeping capabilities. This program turns the chore of balancing your checkbook into a 2 minute treat!

P36: Animation Two beautiful animations, **Spigot** and **Watch**. Both of these were created with 3D animation programs and are truly beautiful and smooth. **P35: HackLife** This is a dungeon-adventure game of the highest magnitude...an absolutely huge world to explore that will task even the most hardened dungeon explorer for weeks on end!

P34: MechForce Any number of players can control up to 24 giant robots with armor, missiles, jump-jets to get you airborne to do battle in teams against each other against the computer...highly addictive!

P33ABCD: Complete Guide to Programming the Amiga in "C" This four disk set features tutorials, sample programs and inside tips to the special programming of the Amiga. Four disks counts as three.

P32: Classic Arcade Games **Defender** and **Missile Command**—need we say more? **Descender** is a clone of the classic Tempest.

P31: Databases Contains all flavors of databases. **BBASE** is a highly Amiga-adapted database, **DataEasy** is another powerful database. **MagMan** is specially designed to help you reference articles in magazines.

P30: Educational This includes **WorldDatabase**, **DrawMan**—which draws detailed ps of countries. **WordGame**, **Metric Converter**, **Spell**—an ingenious spelling checker. **FastFacts**—everything you always wanted to know about our Solar System. **P29ABC: King James Bible** The complete text of the bible is included on this 3 disk set (counts as 3) with printing and searching capabilities.

P28: Bitmapped Fonts This disk contains 67 fonts for the Amiga, all under 25 Kbytes in size...a font for every occasion!

P27: Octamed This remarkable program doubles the sound capabilities of your Amiga from 4 channels of audio to 8! Almost completely identical to MED, this is a very remarkable program.

P26: Directory Utilities Contains all of the best public domain and shareware file disk utilities available for the Amiga, including **UtilMaster**, **FileMan**, **M2DU**, **Sid** and **Master**.

P25: SpaceGames Contains **MoonBase** a very graphically detailed lunar-lander game. **SpaceWar** a two player (either in person or over the modem) space battle. **Galaga** is a 3D word Tetris-like defense, definitely commercial quality. **P24: Printing Utilities** This disk contains a very nice **Banner** maker that will use AmigaDOS font with full-color printing. **RoboLabelCreator** will allow easy creating labels for your diskettes. **PrintStudio** allows easy printing of text/graphic images with full control over page numbering/titling, etc.

P23AB: Tobias Star Trek A graphic space adventure where you're the captain of our own starship. Travel through the universe, stop the Romulans and Klingons and complete your missions. Two disks, counts as two.



The Intrepid featured on TSP43

P22: 3D Objects This disk contains 18 different vector-objects for use with Sculpt 1 and Image. Some of the objects include: train engine, synthesizer keyboard, Amiga 500, space station.

P21: Disk Duplicators This disk contains all the best utilities to backup diskettes. Included are **XCopy** and **NIB** which will backup copy-protected programs. Also included **SuperDuper** which is an incredibly fast AmigaDOS copier. **Erecovery** will move copy protection from many popular commercial programs.

P20: Board Games Includes **Checkers**, **Dominoes**, **Clue**, **Jeopardy** and **Monopoly**. Row away your dice and let your Amiga take care of the details...hours and hours of fun!

P19: PacMan Classics Contains **Mazeman**, **Zonix** and **PacMan87**—all great imitations of the original arcade classic.

P18: MS-DOS Emulation Contains **PCTask** and **IBEM**, two shareware IBM-MS emulators for your Amiga. Also included are utilities to allow Amiga drives to drive 720K format MS-DOS disks—**Multidos** and **MSH**.

P17: Printer Drivers This disk contains over 70 printer drivers for many popular printers.

P16: Telecommunication This disk contains two first-class modem programs, **Commodore** and **Accom**. This disk is for the beginner or expert telecommunicator, featuring all the popular communication protocols, including X, Y and Z-Modem. NCom is a very advanced script capabilities for performing automated log-ins, downloads and uploads.

P15: MED This disk contains the premier music package, **MED** (Musical Editor). It allows you to use digitized sound samples as your instruments and use them in your songs. Its tremendous editing power makes MED more of a musical word processor. An extremely well-done program. Many commercial software companies use this package to create soundtracks for their entertainment programs.

P14: Plotters This disk contains several of the best mathematical plotting programs available for the Amiga. Includes **AmigaPlot**—a 3-dimensional mathematical function editor (pictured), **Plot2.0**, and **PlotXY**.

The AmigaWorld ToolChest, a quality line of low-cost software, presents power tools for your Amiga. By purchasing this software you receive unmatched versatility, usability, and best of all, you support the independent Amiga developer. The "TSP" disk series are collectively grouped by theme for your easy access. The "RK" anthology are registered versions of the cream of the crop in shareware titles. The "TC" line, our premium disk series, is also conveniently available in our money-saving subscription offer.

100% SATISFACTION GUARANTEED

TSP13: Tetris Games This disk contains 6 flavors of the classic game "Tetris." Some have artificial intelligence, others a variety of play-styles/skill levels/number of players.

TSP12: ClipArt This disk contains several excellent bitmapped images for use in Desktop Publishing or similar programs.

TSP10: Fractals Scenery (pictured) will create realistic fractal landscapes. **Genesis** allows the creation of various landscapes with user-definable levels of complexity. Also included are various Mandelbrot generators, including TMandel, Mandel-Mountains and FracGen.

TSP9: Utilities 1 **Icon Meister**—an icon editor with a complete set of editing/painting tools. **TEFormat**—disk formatting program that will format disks that AmigaDOS won't. **ChartMaster**—a graphing tool that allows you to generate and save different graphs in IFF format. **Graph3D** lets you visualize complex data in 3-D and save the results. **StructGen** lets you create gadgets, text, bitmaps and window structures and the program will automatically write the "C" source code for you. **LabelMaker** is a very easy to use, full featured label printer. **DoublePrint** facilitates printing of text files on both sides of paper.

TSP8: Clipart Black & White and colorful clipart for a variety of needs including desktop publishing/video. People, holiday related, school items, scrolls, food, monsters, fish, lobsters, symbols and lots more.

TSP7: 3D Vector Objects #2 Books, Early American literature, barrels, gun, space-ships, lamps, trombone, bugle, skateboard, Lego-Rover, remote control, glider and airplane. All objects in Sculpt format.

TSP6: 3D Vector Objects #1 Lamp, mirror, bed, chair, fire hydrant, lamp post, street lamp, street sign, traffic light, cannon, cannon supplies, rose, fork, spoon, knife and plate. All objects in Sculpt format.

TSP5: Games 1 **Crystal Cavans** is an adventure game with randomly generated worlds—you'll never reach the same world twice! **DotDot** is an adaptation of the classic 2-player connect-the-dot game. **PizzaDeliveryMan** has you running through the streets to get those pies to your customers. **TinyBall** is the world's smallest baseball game. **SurroundCycles** is a high-speed arcade game, based on the light cycle races from the Disney movie *Tron*.

TSP2: Sounds Animal sounds, musical instruments and many, many more—43 sound samples in all!

TSP1: Maps of USA, Canada and Europe Hi-Res IFF brushes of all 50 US States, 10 Canadian Provinces and countries in Europe. Each map has a 3D extrusion effect with cast shadow.

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TC34AB: Optimizer will permanently speedup your hard-disk or floppy disks. **LCD Calc** is a nice full-screen calculator. **BBASE** is a useful database program. **FileDisk** will correct many problems with disks. **BizCalc** is a loan analyzer. **Interferon** is a Tetris-type game. **Nebula** is a 3D space game. **PicBase** will allow you to track all the IFF images you have. **Hate** is a great Zaxxon clone.

TC33AB: Measures 1.0 is an incredibly useful utility that will convert any type of measurement to another. **DisLabeler** is a database designed for storing and printing 3-disk labels. **Janus** is a Tetris-escape game of action and strategy. **Switch** is a fun board game. **Clipboard** will allow you to grab any screen and save it as an IFF picture. **Softball Manager** is a database for storing stats for softball—any number of leagues may be tracked. **WBExec** allows you to execute CLI commands from within the Workbench. Several Clipart images are also included.

TC32AB: Computer Coloring Book is a delightful program for children of all ages—comes with 15 pages of pictures to color again and again. **Listmaker** lets you make, edit, combine and print lists of words—great for those spelling tests! **Mossmoosh** scrolls text files smoothly on the screen and allows easy printing. **Podcast Billiards** lets you choose from several of the most popular pool games with realistic action. **Texture** allows you to create, manipulate and save (in standard IFF format) realistic fractal textured surfaces. **Plague** is a monster maze game. Also includes Screen Fader, Snowbench, and FlipBench.

TC31AB: Calendar Publisher is a professional-caliber calendar maker that is customizable. **CrossCircuit** is a 1 or 2 player action logic game that calls for fast reflexes and thinking. **APB** is a much-needed printer utility. **Pizza Delivery Man** is a maze game where you deliver pies in your neighborhood. **Multiplayer** is a single program that will let you use IFF pictures/brushes or playback IFF sound samples. Also includes RAMpage, 3-D vector objects and Hi-Res IFF brushes of maps and flags of European countries.

TC25AB: ScreenToIFF captures your screen to an IFF file. **PopColors** lets you change the colors of your Workbench screen. **Warrior** is a fun shoot'em-up/adventure game for one or two players. **Kaleidoscope** is a line drawing program. **Blockbusters** is a game where you get rid of blocks by pushing matching blocks into them. **Amidemo** will show-off your Amiga's ability to do solid-polygon animations. **Microscope** lets you examine memory at any location. Also includes Hi-Res IFF brushes of all 50 states and 10 Canadian provinces, nine digitized sounds and two small disk utilities and printer utility.

TC24AB: DiskMaker is a tool for effortlessly building numerical tables. **Kooties** is a fun game where you have to assemble a bug before the computer beats you to it. **HyperText** lets you put links in a text file to other text, graphics, sound, animation, AReXX and other applications. **The Little Black Book** is a wonderfully useful telephone and address book. **Color Logic** is a MasterMind-type game. Also includes several disk and memory utilities—and some sound effect tools to top it off.

TC23AB: Writas lets you quickly and painlessly find a misplaced file on your drive. **Select** creates a window from which you can run your favorite programs. **MathHelp** lets you find the day of the week for any date in the century, also lets you enter statistical data to be analyzed, graphs data, and solves linear algebraic equations. **Pointer List Maker** lets you create your own pointers or import pointers from other programs and save them in a disk file. **DynoWars** requires more strategy and thought than your regular checker board game. Also includes **Mr. Monster** and **Trillion** games, 3-D objects, six sound effects and an animation of a pretzel.

TC22AB: Amiga Checkbook is a fast checkbook manager with check printing ability, budget analysis, and a report writer. **AmiCrypt** is a file encryption/decryption tool to password-protect any file...a must for security. **WaveSyn** lets you design musical instruments and waveforms for use in other programs. It also lets you play your keyboard like a piano. **Cinco** is a game where you try to get five X's in a row before your opponent does. **AlterCLI** lets you change attributes of your CLI window (width, title, depth, height, location, colors) with a single command—very useful for scripts. Also includes an animation by renowned Amiga-artist Lou Markoya, as well as 3-D objects.

TC21AB: C200 is a "risk-style" game where you battle the computer to take over the world. You can create soundtracks for your Amiga by using C200's batch files and AReXX scripts by simply clicking on a gadget. **Colors** prints color test sheets and assigns RGB values to printer and screen output...absolutely invaluable to achieve the best color printing results. **Easyfile** is a powerful database for home or a small business. **Sprite**

Disks	Price
30+3.45
20-293.95
11-194.45
1-105.95

Editor lets you easily create animated sprites. Plus 3-D fruit objects and five sampled sounds.

TC16AB: Cyberscape generates complex 3-D vector objects of terrain and saves your objects in Sculpt or Turbo-Silver format. **Mathplotter** graphs mathematical equations in both 2-D and 3-D. **Double Print** prints your text files on both sides of the paper. **Metamorph**, a graphic adventure game, **TinyBall**—the world's smallest baseball arcade game and 6 digitized sound effects.

TC15AB: LabelMaker is a very easy to use label program. **SurroundCycles**, a high-speed arcade game, **DotDot**, an adaptation of the classic connect-the-dot game. A tutorial on animation techniques by Amiga-artist extraordinaire Brad Schenck complete with one of his animations. Also includes a collection of clip-art and more animal sounds.

TC14AB: AmigaFile is a database and address book. **Graph 3-D** lets you visualize complex data in a 3-D manner and save the results. **Spectrogram** analyzes and displays digitized sounds. **Pteronadonaball**—an animation by Lou Markoya. Also includes 3-D Tic Tac Toe, 3-D objects, fold clip-art, and sampled sounds. **TC13AB: StructGen** lets you create gadget, text, bitmap, and window structures and writes the C source code for you. **LifeCycles** plots your biorhythms. Create spectacular images with **Mandelbrot**. **Look**, a CLI utility that helps you find files on your disk quickly and easily. Plus 3-D objects, holiday clip-art, an Amiga Flight animation, **drive head cleaning utility**, and technical discussion on how AmigaDOS stores information on disk.

TC11: DiskSalvage will fix corrupted disks and recover deleted files. **IconMeister** is an advanced icon editor. **AllenDuel** is a fast, shoot'em-up game. **Crystal Cavans** is a colorful, graphic adventure game like the arcade game. Also includes an animation, sound samples, 3-D dinner table objects, and Hi-Res monster clip-art.

SPECIAL EDITION TOOLCHEST

RK1: MegaBall This disk contains the full-release version of MegaBall, complete with the level editor to create your own challenging worlds to conquer. This game is quite similar to Arkanoid and allows two players with stereo sound and 5 soundtracks! Special RK price, \$14.95.

RK2: Macmillan This remarkable utility will allow you to record any mouse click or keypress and play it back as a macro at any time, inside any program. Also provides memory info/clock, alarm, screen blanker, mouse accelerator, mouse-to-menu, sunmouse and window cycling. Special RK price \$19.95.

RK3: 3D Objects an amazing collection of some of the best 3D objects we've ever seen. Also includes texture maps to wrap around some of the objects...1.5MB of data in all! \$14.95

RK4: Home Manager This program will help you keep track of your life! Complete address book, appointment scheduler, notepad, auto-dialer (requires modem), area-code utility and complete inventory of all your possessions and credit cards. Extremely useful. Requires 1 Meg. \$14.95



AmigaPlot featured on TSP14

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We have been the official Public Domain Library of all the best Amiga magazines. Find out why these magazines choose us! The first two letters on each disk indicate the orientation of the disk; WB# general interest - most programs can be run from the workbench, FD# games and entertainment, VO# are video related programs/utilities and DD# advanced—requires thorough knowledge of AmigaDOS/CLI. Thanks to our extensive arsenal of anti-virus software, ALL of our software is guaranteed virus free!

UNBEATABLE VALUE!

DD79abcd: Amiga "C" Tutorial - This is the most comprehensive C language—Amiga oriented—set of tutorials available. Includes full working examples, source code and an incredible set of lessons. Included are full discussions and examples for Amiga programming. 4 disk set, counts as 3.

WB118: Amiga Beginner - You asked for it! This disk contains a complete tutorial for the beginner on using the Amiga. Starts you off at the power-switch and takes you through to the CLI/Shell and all points in between. Bonus! Also included are 16-color icons to replace every icon in your 2.0+ Workbench.

NEW DISKS

FD84: Games! Deluxe PacMan is better than the original—20+ mazes, special "power-ups" with outstanding graphics. ThinkAmiga is the classic game of concentration—with beautifully drawn HiRes images.

FD83: Arcade Series - Contains Croaker and Scumble, two great clones of the arcade games "Frogger" and "Scramble."

FD82: Intrepid - In the Arctic ice, you control a tank on a mission to rescue hostages in this superbly crafted Amiga original.

FD81: SuperGames - Some of the best games—Donkey Kong is better than the original with an extra level! Frantic Freddie and TrailBlazer are both fast-paced arcade games. Mad Bomber is the classic game of "Kaboom" redone with an Amiga flare. All of these games are excellent!

FD77: Arcade Series - Galaga'92 is a clone of the arcade game of the same name with several gameplay enhancements—with smooth, sharp graphics, it's better than the original! Pharaohs Curse is a clone of the original C64 classic. Diplomacy is a beautifully computerized version of the Avalon Hill board game—conquer or be conquered!

WB122: System Optimizer - KCommodity enhances your system, gives memory meters, mouse/keyboard enhancements, online timers plus many others...too numerous to list! REorg will optimize hard and floppy-disks for a big speed increase. HDMem will allow you to use up to 2 megs of hard-drive space for virtual memory! (Req. 68020+ w/MMU) All programs require 2.0+.

WB121: ProPage3 Enhancer - This disk contains over 40 "Genies" for use with ProPage 3.0, including useful ones like Make Pie Chart and Resize Text to fit box to name a few. Also includes structured & bitmap clipart for unique borders...a must have for all PPage 3 users.

WB120: Grinder - A complete graphics conversion package that supports GIFs, JPEG, Atari ST (Neochrome & Degas), PCX, Targa, TIFF, HAM-E and IFF format pictures.

WB119ABCD: Font Set This collection contains over 100 typefaces for use with Professional Page 3.0 or PageStream 2.1+. These fonts will output to any laser printer or dot-matrix printer with no jaggies, thanks to outline font technology. Very professional looking typefaces. 5 disk set, counts as 4.

DD88: GnuPlot - This is a command-driven interactive function plotter. Creates stunning plots/graphs of mathematical functions. Requires hard-drive and unpacks to over 1.6MB of code/data...most impressive!

DD86: The Programmer - Includes GadTools and REQTools which will allow you to create your user interfaces and then the program will automatically generate "C" source code or Assembly-code—saving you countless hours of work! Requires, and writes code for, AmigaDOS2.04.

FUN DISKS

FD5: Tactical Games - BullRun - A civil war battle game, Metro you play the role of a city planner. Build wisely and your system will be a success, but poor planning will lead to disaster and financial ruin. Very very habit forming.

FD6: GAMES! This disk is chock full of games including: Checkers, Clue, Gold - A new slide the pieces puzzle, Jeopard - An enhanced version of Risk, RushHour - Surprisingly addicting, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.

FD7: Pacman - This disk contains several pacman type games including: PacMan87, MacMan and Zonix.

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FD14: Dungeon Master Hints and Arcade Games - DM maps, spells, item location, and hints and more, also on this disk, Hball - an arkanoid/breakout type game, Trix - a Cix type clone.

FD17: Educational Games - This disk includes several games for the younger members including geography, math, science, and word games, also includes Wheel of Fortune.

FD20: Tactical Games - MechForce(3.72): A game that simulates combat between two or more giant, robot-like machines. Simple words can't begin to give you the feel of piloting a 30 - 40 foot tall, fire breathing, earth shaking colossus that obeys your every whim.

FD26: Arcade Games - Marble slide is a commercial quality game—similar to a Lucas game named PipeDreams, excellent playability and entertainment. Mutants—a small version of the same arcade game. SuperBreakout is a Pong/Arkanoids type game.

FD27: Arcade Games - This disk is loaded with some great games. Includes, Raceorama - a great racing car game with ten different courses, MiniBlitz a helicopter gunship type clone, Shark in the same class as frogger, and SBreakout the original breakout with more.

FD29: Shoot'em ups - WWII - you're the pilot of a WWII plane flying through enemy territory, you've just been spotted, good luck on your mission, SKiller - try and penetrate enemy lines with this game, and Retaliator - another great game.

FD31: Games! - Air Traffic Control - a good ATC simulation, Black Jack Lab - a full featured set of card games, ChessTel - play chess with your

SPECIAL PRODUCT!

QT1: The A64 Package - A very complete Commodore 64 emulator. Supports any CPU and is fully compatible with WB1.3 & 2.0. This version includes a special adaptor that will allow you to connect your 64's 1541 disk drive to your parallel port of your Amiga for total emulation. Two disk set, counts as two. Special price \$49.95 - including hardware.

friend in distant and remote places with this game and a modem. Labyrinth - a 3d maze game.

FD32: Flight Simulator - An instrument flight simulator for a DC10.

FD33: Arcade Games - Freddy a Mario Brothers type of game. Gerbil's a target practice game, Pipeline a German interpretation of Pipe Dreams. Trogan a light cycles version, and Tetroids a wonderful version of asteroids with a hilarious twist.

FD35: Omega (v.1.3) - A new outstanding dungeon and outdoors adventure game in a similar vein as hack, rouge, and moria. This version is considerably faster and better than all previous versions. Play time several weeks.

FD37A&B: Tactical Games - Empire (2.2w) This great game comes highly recommended. With a full-graphic front end.

FD38: Games - Cribbage Master - A great cribbage game and tutor, Spades - a well done card game, ChineseCheckers - A computer version of this classic, Puz - a slide piece puzzle game and construction set.

FD39A&B: Star Trek, The New Generation - This is a, completely different version of Star Trek than that found on FD12. This one was created by the German author Tobias. Now with English instructions. Excellent!!! Counts as two disks. Requires 512k.

FD44: Game - Mechlight is an out of this world role-playing adventure comparable to hack and moria. The setting, interplanetary colonies and space stations. In your quest to explore the world, take time out to liberate bad guys of their most valuable possessions, engage in a mortal combat or two against robots and alien life forms, pick up a new Amiga 9000. Most of all, don't forget to stay alive...

FD50: Submarine Game - Sealane, one and a half years in the making, this is an outstanding submarine tactical game. Commercial quality, highly recommended.

FD52: Classics Games - PetersQuest a well done Mario brothers type of game. Jymc a two player missile command clone, and Vstank a tank commander game.

FD53: Great Arcade - On this disk is a wonderful implementation of the ever popular classic arcade game Defender. Also contain Air Race a WWII flying ace arcade game, and Psychoblast new creation idea game.

FD57: Arcade Games - Includes 2 truly commercial quality games. MegaBall, an Arkanoid-ish game, features 5 musical scores, multiple levels and addicting gameplay. Gravity Attack is a psychedelic trip through several different worlds—each distinctly different.

FD59: Game Potpourri - Xenon III is an almost exact clone of the commercial game of the same name...a great shoot'em up. Crossword will take lists of words & automatically generate word-search puzzles for any Epson compatible printer.

FD60: Games - In Nebula, race over a 3d world to destroy enemy installations. Interferon - a great Dr. Mario clone. Enigma is a game a puzzle?

FD61: Games - Solitaire; great graphics, plays two versions. Kluge; an interesting piece of eye candy. Extreme Violence; 2 player kill or be killed

game. YATC: A Tetris clone with Artificial Intelligence. Genesis; create realistic 3d fractal worlds.

FD62: PomPom Gunner - An extremely smooth and well done World War II gunner simulation. Requires 1 megabyte of memory.

FD64: Games - Wizzy's Quest - a "great" 50 level game with great graphics. Cubus - a 3-dimensional Tetris type game (rotate and move in 3 dimensions). Husker Du - Colors and pattern rather than shape in this Tetris-esque game. 5 screens and 3 levels of difficulty. Requires Fat Agnus (1 Meg of Chip).

FD67: Arcade - Includes Llamatron a well-done "Robotron" clone. Hate is a "terrific" commercial grade Zaxxon clone with multiple levels/worlds and smooth diagonal scrolling...a 10!

FD68: Potpourri - Eternal Rome is a strategic simulation of the Roman Empire including military, diplomatic, political, economic and social factors. Lord of Hosts is a board strategy game for 2 players. In Moonshine, you've got to get the nootch across the state line—a great rolling, scrolling driving game!

FD69: MindGames - Had enough of shoot-em up games? Relax and let these 21 games exercise your mind instead of your wrist.

FD70: SpaceGames - Contains AmGolds, >Infini!< an Asteroids game that takes advantage of the Amiga—totally configurable with great sound and graphics. In Cosmostruck the object of the game is for each Cosmostruck team to acquire the most points while construction energy ducts between the space station and planetoids.

FD71A&B: Star Trek: TNG Trivia Challenge - So you think you know The Next Generation, huh? Complete with fantastic sampled sounds and digitized images, this game even looks and sounds like a genuine Star Trek terminal! VERY thorough and complete! Counts as 2 disks.

FD72: Sword of the Warlock - This is a demo version of a great public domain graphic dungeon adventure game. The adventure spans three diskettes and allows two players to go adventuring. The game has a "Bards Tale" feel to it. Three disk set, counts as 2. Requires 1 meg of RAM and 2 floppy drives—HD installable.

FD73: Arcade Series - Intruder Alert! is a MULTI-level "Berserk" clone. Features smooth gameplay, great graphics & digitized sound f/x.

FD74: Arcade Series - RingWar is an "Outer Limits" clone with vectorized graphics. MotherLode is a "Lode Runner" clone with 50 levels! In BlitzTanks, they're coming at you from all directions!! Call in air strikes and use your heavy artillery to survive!

FD75: Arcade Series - Descender is a clone of the classic arcade game "Tempest"; complete with vectorized graphics. Tanx is the classic battle of trajectories and inertia between two tanks—increasingly well done! Search is a maze game unlike any other—included is a level editor too. (Tanx requires 1 meg chip memory—Fat Agnus)

FD76: Catacomb - is a full graphic dungeon adventure game with beautiful graphics and a very slick icon/mouse driven interface.

WORKBENCH DISKS

WB4: Telecommunication - This disk contains several excellent pd communication programs designed to get you on line quickly and easily. Access (1.42) - A very nice ANSI term program. Comm (1.34) - Latest version of one of the best public domain communications programs ever made on the Amiga. Handshake (2.12a) Handshake is a Full featured VT52/100/102/220

WB5: Fonts #1 - Several fonts (35) for the Amiga, also included are five PageStream fonts and ShowFont - a font display program.

WB6: Fonts #2 - ShowFont(4.0) This program allows you to quickly and painlessly view all 255 characters in a typical font. Large AmigaDos system fonts (many up to 56pts).

WB7: Clip Art - This disk is loaded with black and white clip art. Art includes, trees, watches, tools, US and State maps, and more.

WB9: Icons - Truly a multitude of various types and kinds. Also includes IconMister, IconLab, and others great utilities to help generate icons.

WB10: Virus Killers - The latest and best VirusX(4.0), Kv(2.1), and ZeroVirus III.

WB11: Business - Clerk(4.0), finally a full featured business accounting PD program for the small to medium company. Includes receivables, payables, and end of month and such more.

WB12: Disk Utilities - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery archive and organizing, and all sorts of file manipulation. A must have!

WB13: Printer Drivers and Generator - over 70 different drivers, and if these don't do it, with PrintGen you can make your own.

WB15: Business - This disk contains a spreadsheet, a database, a project-time management program and financial analysis (stocks).

WB16: Business - This disk contains an inventory manager, a loan analysis program, a great calendar/scheduler, a rolodex program, and penny-wise a good "Cash Book" accounting for home or office.

WB18: Word Text Processors - This disk contains the best includes, TextPlus (v2.2e) a full featured word processor, Dme(v1.35) a great documents editor with strong macro features, TexEd(v2.8) an enhanced Emacs type editor, and a spell checker.

WB22: Fonts #3 - Several more great fonts. These, like the other font disks work great with DPaint and WYSIWYG word processors.

WB23: Graphics and Plotting - Plot (20b) a three dimensional mathematical function plotter. Can plot any user defined function, BezSurf2 - produce awesome pictures of objects one could turn on a lathe. Can also map IFF image files onto any surface that it can draw. Now compatible with most 3D packages, and VScreen - makes a virtual screen anywhere, great for DTP!

WB25: Educational - On this disk are two programs that can generate maps of differing types, World Data Base uses the CIA's data base to generate detailed maps of any entered user global coordinates. Also Paradox a great demonstration of Albert Einstein General Theory of Relativity.

WB26: Disk Utilities #2 - MRBackup, KwickBackup - two well done utilities to do harddisk and floppy disk backups. FileMast - a binary file editor, LabelPrinter - Disk label printer with very powerful features.

WB27: Nagel - 26 Patrick Nagel pictures of beautiful women.

WB29: Graphics and Sound - This disk has several different Mandelbrot type programs for generating stunning graphics. Includes, MandelMountains - a realistic terrain generator, Fracgen - generated recursive fractals from user input, Mandelbrot and Tmandel - two fast mandelbrot generators, also Mostra - the best IFF display program to date, will display ALL IFFs including Dynamic HAM, and Sound - a great IFF sound player, will play anything.

WB33: Circuit Board Design - several terrific routines for the electronic enthusiast, including PCBTool - a circuit board design tool, LogicLab - circuit logic tester, and Mcad (1.26) a well done new release of this PD CAD program, now comes with predrawn common circuit components for insertion into schematics.

WB34: Utilities - Several well done utilities, some will require moderate knowledge of a CLI or Shell for setup, Chatter Box - this one will play any user defined sound after any event (ie. disk insert, mouse click, disk removal...), Artm - The Amiga real time monitor, gives you full control of the Amiga OS, very powerful program, Helper - help program to make learning the CLI easier, and more!

WB35: 3D Graphics - This disk contains several neat programs to use with your 3d modeling/raytracing programs. 3dFonts - Full vector font set for use with 3d programs, FontMaker - make 3d fonts from any system font, Make3DShape - create 3d shapes from any image, DumpToIFF - create 3d animations preserves palette, and World3d - a demo program of a front end for use with DKRender.

WB36: Graphics - On this disk are several programs to create stunning graphical images including, MPatch - creates swirling galaxy images, Roses - produce an unlimited number of variations of images that a symmetrically similar to a rose, SimGen - display those spectacular images as part of your workbench screen, and RayShade - a very good raytracing program, create your own beautiful 3d graphic models with this one!

WB37: Educational - Educational games and puzzles that cover math, geography, spelling, and books. Ages 6 - 15

WB38: Plotting and Graphics - Plotxy is a powerful full featured plotting package. Used by many colleges and universities. Highly recommended. Plans - a incredibly well done Computer Aided Drafting program, very full featured. Tessellator - a program that helps generates fantastic looking, recursive M.C. Escher type pictures.

WB40: Music - "CD on a disk", 90 minutes of modern music on this well presented collection. Requires 2 drives or HD.

WB41: Music - MED an incredibly well done, full featured music editor. Create your own stunning music directly on your Amiga. Similar to SoundTracker but better. Very powerful easy to use program. Version 3.20, which is compatible with WB2.04.

WB43: Business - This disk contains AnalytiCalc - probably the most powerful spreadsheet program on the Amiga. A full featured spreadsheet with many features expected in a commercial package. Req. 1.2

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50 for \$33.50 (.67 cents ea)
100 for \$62.00 (.62 cents ea)

No shipping charge on USA blank disk orders, Canada and Mexico add \$.15 each, other foreign add \$.50 each.

WB46: Clip Art - HighRes clip art with the following motifs - embellishments (borders, borders, ...), people, and transportation.

WB47: Clip Art - HighRes clip art with the following motifs - hair, drafting, summer, animals and macfood.

WB48: Clip Art - HighRes clip art with the following motifs - Holidays, music, medical, and misc.

WB49ABC: Animation Sampler - On this three disk sampler set (counts as two disks) are some of the best animations that have been created over the last three years. Several examples of "Movie" type animations some with spectacular raytraced reality (colorful, watch, spigot and egg). Also several european style or "Demo" animation with incredible graphics and outstanding electronic music (akrilight, copersine, doc, dps2010, impact, and logodemo). These truly show off the Amiga!

WB50: Animation - Seven of the best european style animations or "Demos", including - scientific 451, subway (a U.S. entrant, also our favorite), sunrise, thrstdemo, night, waves, and wocw.

WB53: Graphics - Raytracing programs generate absolutely stunning realistic looking planes, rockets, buildings..., and surreal images often consisting of highly polished spheres and objects. C-Light is the most powerful EASY-TO-USE of it's kind we have seen to date. This is easily better, and more full featured, than similar commercial programs costing in the hundreds of dollars. Also, sMovie - a full featured video text titler similar to ProVideo, Broadcast Titler. Great video scrolling, wipes, special effects, and more...

WB54: Printing - This disk contains several routines to help with the chore of printing. Includes Gothic - Finally a Banner printer for the PDI PrintStudio - a well implemented all-purpose printer-utility with a very comfortable graphic interface and many advanced features, Lila - with ease, print ASCII files to a PostScript printer, and many more.

WB55: Application - XCopyIII - a full featured disk copier, make backups of copy protected disks. RoadRoute - find the quickest route from one city to another, highway description included. Diary - a diary program like "Dougy Howard M.D.", Cal - a calendar program, Magman - a database tailored to maintain records on articles and publications.

WB57: Animation - This disk has several "Demo" style animations, including, Blitter, Lolly, Sun5, vertigo, vortex, and xenmorph.

WB62: Midi Utilities - Several useful midi utilities including, programs to transfer to and from several music programs to midi, a midi sysex handler, a midi recorder with timebase, display midi info, file sequence player, and a few scores.

WB63: Disk Utilities #3 - Several highly recommended programs to aid in removing duplicate files from your hard drive, performing file backups, Binary editing, fast formatting, file recovery, disk track recovery, and forced DISK VALIDATION of corrupt disks.

WB66: Icons #2 - Let's of neat icons. Also, several wonderful programs that to let you create your own icons, modify and manipulate icons and icon structures.

WB68: Music Utilities - several good utilities for the Amiga music enthusiast. Includes, Noisetracker - a great music creation program, Sonix2MOD - converts sonix to .mod files which then can be used by noisetracker, soundtraker, and MED, SpeakerSim - a speaker design tool demo, Wondersound is an additive harmonic instrument design tool with a separate envelope design window and 16 relative harmonic strength and phase angle controls.

WB69: Music - This disk has over 90 minutes of classical and modern electronic music for you Amiga.

WB70: Desk Top Pub - Atop - transfer Macintosh screen fonts, Mac or IBM format. AFM metric files, to Amiga screen fonts and PPage metric files. With this program, open the door to the libraries of Adobe and PostScript fonts! Calendar - month templates in PageStream form. Post - a full featured postscript file display and print utility.

WB75: Music - over 100 instruments files (.inst) and sample sound files (.ss) for your music programs.

WB76: Applications - This disk contains Stichery - a often requested knitting design program, Lotto - a rather complete lottery tracking and prediction utility, SSS - this screen capture program can grab almost any screen including games, Today - a personal calendar, Tarot - fortune teller, and Grammar - grammar checker.

WB79: Home & Business Accounting - Includes Kcbaccnt - the most complete checkbook accounting program going, LDCalc - this well done calculator has a very large display and operates from the keyboard or mouse. Mileage master - monitor your automobile mileage with this mileage log, Grammar - a grammar checker, and Worldtime - find out what time it is in up to 50 global cities.

WB81: Great Applications - DataEasy a very easy to use, database program. Don't let the ease of use fool you, this is a very full featured database program including full printer control for addressing labels and mail merge applications. Also includes, TypeTut a good typing tutor, RLC a full featured label printer, Banner, a multi-font banner maker, and Budget a home accounting in a program. Highly recommended.

WB82: Animations - Four full length, well done "movie" style animations. Including, Coyote, JugglerII, GhostPool, & Mechanic. 2 disks, counts as 1.

WB83: Computer Art - this disk has some of the best Amiga generated computer art that we have collected in the past 5 years.

WB88ABC: The Complete Bible - A three disk set, with the entire text of the New Testament and Old Testament-King James version. A great utility. Three disk set, counts as three.

WB90: Rippers, Strippers and Beats - For the Amiga music enthusiast, this disk contains many programs designed strip music from your favorite games and programs. Also contains Drums, a very nice drum machine. This disk requires some knowledge of the CLI.

WB93: Workbench Extras #2 This disk contains the utilities that Commodore should have shipped with the Amiga; VirusX4.0, Snap, FixDisk (recover corrupt/deleted files), Disk Optimizer (flopky & hard), MachIII (screen blanker, hotkey, mouse accelerator, macro, clock utility), GOMF (a grabuster) and PrintStudio.

WB95: Checkbook Accountant 2.1 - This is definitely commercial grade; we've seen many checkbook programs and this is absolutely the best. Full budgeting, transaction recording and report generation.

WB96: Dupers - Contains XcopyIII & Nib which will backup copy-protected programs. FreeCopy removes copy protection from several programs, and SuperDuper will crank-out fast AmigaDOS copies.

WB98: Business - Includes BBasell a nice, powerful database; BizCalc - a personal or mortgage loan calculator with amortization capabilities, Loop - a flowchart maker, Formmaker - design professional forms on your Epson LQ-2500 compatible printer.

WB99: Lifestyles - Includes AGene - family tree program that tracks up to 600 people/marriages/etc. Landscape is a CAD program to create gardens/landscapes. Loom simulates an 8 harness loom; experiment with pattern design in an instant feedback environment.

WB101: Chemesthetics - is a program that displays molecules as a calotte model. This kind of display contains a certain esthetic attitude, even poisonous molecules like nicotine and dioxine look quite nice.

WB102: Telecommunications - Contains the programs NComm 2.0 and VT100-29B. Zmodem protocols, XPR protocol support, full VT100 emulation. NComm's script language is so powerful it comes with a script file that creates a full-featured BBS system.

WB103: Music - Contains 12 "great" SoundTracker/MED music Modules...complete with programmable/shuffle player...8 bit audio never sounded so hot! Two disk set counts as two.

WB106: Home Manager - This is a great all-in-one address book with an autodialer/notespad-to-do list/appointment scheduler/home inventory database and phone number dialer.

WB108: OctaMED - This breakthrough program doubles your Amiga's sound capabilities from 4 channels to an ear-popping 8 channels! All the renowned editing capabilities of MED plus 4 more channels! If you thought your Amiga sounded good before...you ain't heard nuthin' yet!

WB109: VerseWise - Display, search and output The New Testament to text files or your printer.

WB112: Productivity/Business - Stock Analysis allows automated downloading of stock data with full analysis capabilities (requires module). SubStore will allow you to log magazines and articles with full search/scan/print capabilities.

WB113: Sid II - Why pay 40 bucks for a directory utility, when this one will do it all plus much more! A truly professional-caliber program. Sid 1 was our best, now completely rewritten, Sid 2 will astound you.

WB114: Fonts #4 - Contains 36 bitmap system fonts.

WB115: Term - If you have AmigaDOS 2.04+ and a modem, then this is THE program for you. Term totally conforms to the User Interface Style Guide for 2.04, has an AREXX port, and supports all popular file-transfer protocols through XPR libraries. We wish all programs were this good.

WB116: Databases - This is what you've been waiting for! Contains 5 uniquely specialized database programs for tracking: Videotapes, CD's, Magazine Articles, Comic Books and Trading Cards!

WB117: Religion - Contains Scripture_Mem (aids in memorizing verses and passages) and in Paul's Journey, you are Paul of Tarsus exploring the Mediterranean and preaching just as Paul did. Req. 1 MB RAM.

DEV DISKS

DD45: AREXX Programs - This disk contains several useful arexx programs and examples, PopCL14 - The latest of a must have utility.

DD47: Pascal - This disk contains everything needed to program in Pascal, includes, A68k (1.2) 68000 assembler, Blink linking software and PCQ (1.0) a modest Pascal sub-set compiler.

DD49: C Compiler - contains zcc(1.01) fully K&R, zcc(1.0) front end, A68k(1.2) assembler, Blink linker.

DD50: AREXX #2 - a must have set of tutorials on AREXX and several useful examples and utilities for AREXX development.

DD51: Circuit Analysis - Aspic (2.3) A full featured program for electric circuit analysis.

DD52: Scientific - Includes Elements - an incredibly well done periodic table program with source, Scientific plotting - over 600 of Lattice C source routines that can be included in your own programs.

DD54: Compression - This disk is loaded with all of the best file compression programs and aids for the Amiga. Many of the programs can be used by the new user. Includes Arc, Lharc, Lhwp, Pkarc, PowerPacker

DD55: AR - A full featured program for electric circuit analysis.

DD56: AR - A full featured program for electric circuit analysis.

DD57: AR - A full featured program for electric circuit analysis.

DD58: AR - A full featured program for electric circuit analysis.

DD59: AR - A full featured program for electric circuit analysis.

DD60: AR - A full featured program for electric circuit analysis.

WB105A&B: Workbench 2.0 Extras #2

This set contains the programs that should have been included with WB2.0. These powerful utilities take full advantage of the many new capabilities that are available in Workbench 2.0.

Tool Manager - a wonderful utility to add programs to your TOOL menu, create a collection of icons on the workbench to easily launch frequently used programs...and much more! (See the review in AmigaWorld-May'92)

Virus Protection - just drop this icon in your WBStartup drawer, Degradar - gives you tools to try to make non-2.0 happy programs work.

Icon - Enhances Workbench's "Show All" to display over 40 distinct icons for different types of files (text, IFF's, source codes, libraries, etc).

Font Editor - Create/edit bitmap fonts with full color support.

Screen Blankers - ala fractals and splinters and swarming bees.

Requester Enhancers - no more stale "Please Insert Volume" requesters - these are animated requesters for all of the system's requesters.

CPUBit - speeds up text displays for owners of 68020+ CPUs.

TWO DISK SET, COUNTS AS TWO

a must have by all. Zip, Warp, and Zoo. Also IFFcrunch an excellent compression for IFF files.

DD55: ARP - On this disk you will find the complete ArpRe3.0 release including the full user docs, the full Developers guide. ARP is the official AmigaDOS Resource Project (ARP) release 1.3. ARP makes many improvements to AmigaDOS and makes your CLI more powerful.

THE AMIGAWORLD "BEST-OF" SET!

FD85ABCD: AmigaWorld's Best - These four disks contain the hottest p/d games of '92! Includes Mother Lode, Moria, Minefield, Pong, Intruder Alert, Deluxe PacMan, Rocky and Super Artillery (see Dec. '92 AmigaWorld). Four disk set, counts as three.

DD57: Advanced Utilities - Msh - like Cross-dos, copies files to and from MS-DOS, Pal-NTSC - convert any pal program to NTSC and vice versa. Also several boots for your startup-sequence, plus 25 more programs.

DD62: Basic and Xscheme - Cursor - a full featured Amiga Basic compiler, basic and text - several wonderful routines to help in basic programming, and Xscheme - an interpreted object oriented language.

DD66: Programming Toolbox - Many programs to help in your development efforts (most for C some for basic) includes programs to generate requesters, an incredible spriemaker toolbox, to greatly aid compiling, convert DPaint brushes to C structures, a great library manager, and many more wonderful time savers!

DD69: Advanced Utilities - SuperNet and ParNet - Connect two Amiga's and share resources, MemMonitor - Similar to WFrags but greatly improved, Selector - put menus on your workbench screen, and more.

DD71A&B: C Compiler - This disk contains DICE, Matthew Dillon's full featured, powerful C compiler and environment system. 2 Disks, counts as 2.

DD77: Fortran - Contains a full featured Fortran77 development system. Also contains EzAsm - a strongly macro dependent 68000 assembler.

DD82: Unix - Contains a working demo of Minix - a Unix workalike. Minix is system call compatible with VT of Unix.

DD83: IBM - Not one, but TWO IBM emulators that will allow the running of MS-DOS software with Amiga programs!! Comes complete with programs to turn your Amiga floppy drives into 720K IBM compatible drives.

DD85: AnalytiRIM - This incredible program is a combination of a powerful spreadsheet and a Relational Information Manager (database). Not for the faint of heart, this is a heavy-duty package! Req. 1 MB RAM.

VIDEO-RELATED DISKS

V09: 24-Bit - Contains Rend24 which allows you to proof Toaster-generated 24-bit animations. Also contains utils to convert IFF's to IBM VGA/Windows readable format. Also contains latest release of your IFF->IFF converter.

V01: Graphics - Picbase will let you view and track all of your IFF pictures over all of those floppies! FreePaint is a Deluxe-Paint workalike. Agraph is a powerful utility to produce snazzy graphs.

V03: Image Utils - let VideoToolsOnTap let you tap into the video power of your Amiga for fades, colors and greys as well as a plethora of other indispensable video functions. TitleGen will do professional crawling titles. JPEG converts JPEG->IFF with amazing compression. ImageLab performs special effects on IFFs.

V05: Modelling - Vertex allows you to create 3-D objects without using the abstract X, Y and Z views. Loads Sculpt-3D/4D, Turbo Silver, Imagine, LightWave, GEO and Wavefront formats. MagicTween will metamorphose any two pictures by automatically animating the "in-between" frames.

V06: Modelling Objects - Contains 20 vector objects in Imagine format. These are perfect for use with V05 or your favorite 3d modelling program. Includes Amiga 3000, space station & many more!

V07: StarTrek Objects - Contains the USS Reliant, NCC-1701D (the Enterprise from Star Trek:TNG) and a Ferengi Marauder ship. Also contains a fully detailed Porsche 911 and Apache Attack Helicopter. Imagine format.

V08: CompuGraphic Fonts - Contains 2 clipart-style fonts and 4 actual typefaces for use with WB2.04 and it's Fountain utility. Great for desktop publishing and/or video projects.

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Index to 1992 Articles and Reviews

Editor's note: Individual entries in this index are presented alphabetically under two major headings: Articles/Columns and Reviews. Articles/Columns are organized alphabetically under the following subject categories:

- CD-ROM/CDTV
- Cross-Platform Compatibility
- Desktop Publishing
- Games
- Graphics/Animation
- Hardware: Systems/Expansion/Peripherals
- Multimedia/Authoring Systems
- Music/Sound
- Operating System/Workbench
- Printers/Printing
- Productivity/Business
- Profiles
- Programming
- Telecommunications/Networking
- Video

Reviews are organized alphabetically under the categories of Hardware, Software, and Games.

SI refers to the Desktop Video and Animation Special Issue.

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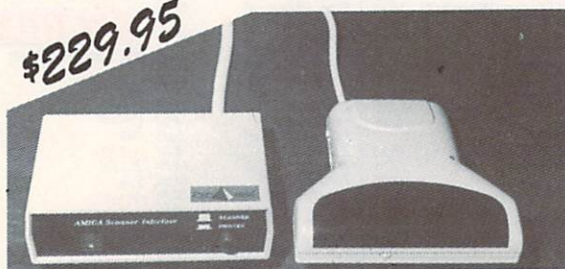
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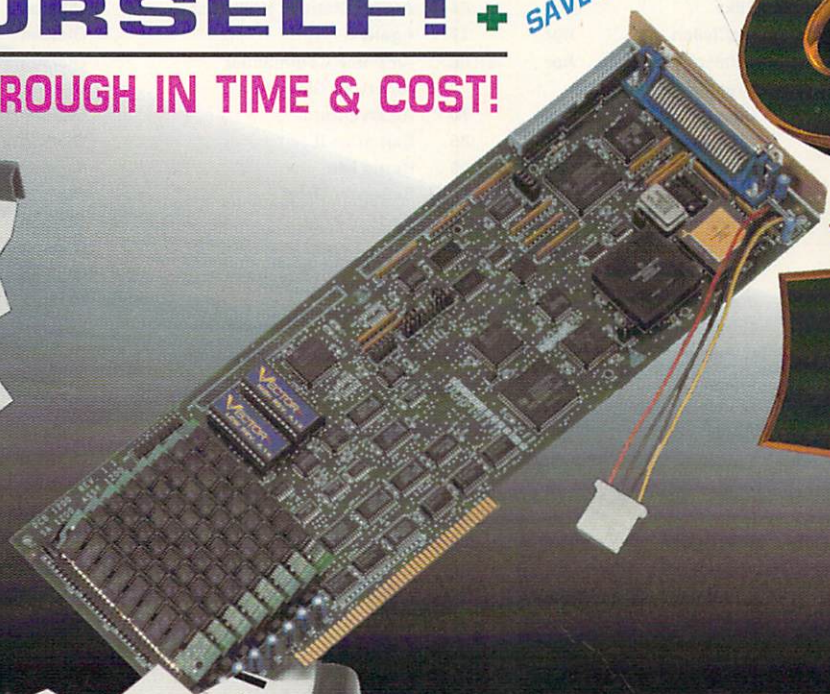
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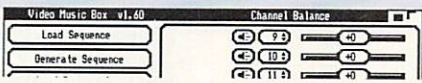
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Links	Hays	Sep	70
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Merchant Colony	Olafson	Nov	106
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The Manager's Challenge	Olafson	Jun	92
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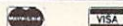
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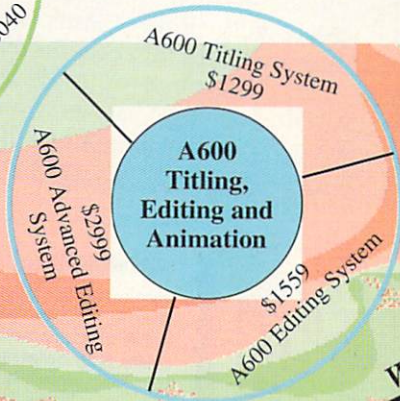
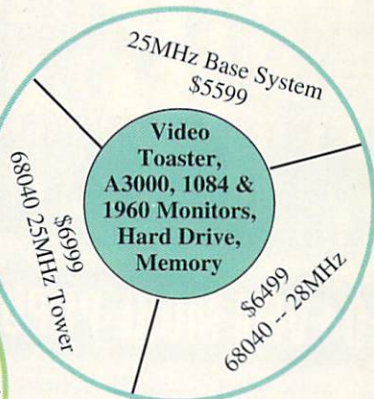
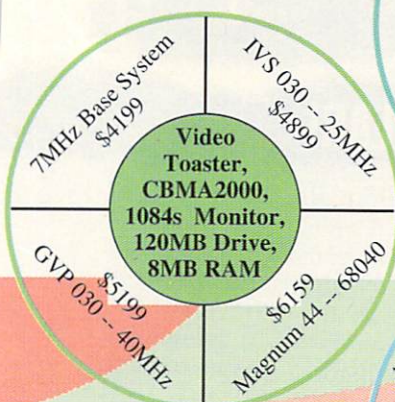
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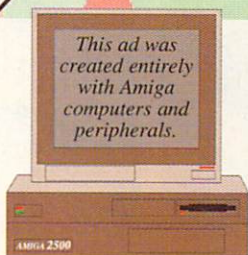
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THE LAST WORD

Kudos, complaints, comments, concerns, and contributions from our readers.

TIME FOR AMIGA FEVER

It was interesting to see in *Time* magazine's special issue on "Beyond the Year 2000: What to expect in the New Millennium" that the only computer pictured in the magazine outside of the advertisements—all the ads were by IBM, the issue's sole advertiser—was the Amiga. Science-fiction master Arthur C. Clarke, the author of *2001: A Space Odyssey*, was pictured at his home in Sri Lanka beside an Amiga with an image of Mars on its screen. Even better, there was an "Amiga Fever" sticker visible in the photo on the window behind Clarke and the Amiga monitor.

Lars-Erik Olson
Avenel, New Jersey

IS MY A3000 AN EDSSEL?

I bought an A3000 in the summer of 1990 because I thought it was the upcoming thing. Now, few ads in *AW* ever mention the 3000. Do I have an odd-ball computer? Can I expect more support and software?

John Weissman
Orange, California

POSITIVE UPGRADE

Gold Disk, ASDG and RCS (Fusion Forty) are the only Amiga companies I've come across who, in operating a positive upgrade policy of contacting customers about upgrades, demonstrate the value of sending in a product registration card. Thanks, folks.

I also want to compliment Gold Disk for their prompt, courteous service: When I upgraded Professional Page and Professional Draw, the packages got lost in the Canadian postal service. One quick phone call to Gold Disk brought replacements immediately, free of charge.

Keith Hunter
Aberdeenshire, Scotland

AND NOW, A WORD FROM OUR...GURU

Saturday morning, sleeping in. As I slowly awake, I turn on the TV with the remote. I stop at the Preview channel, and I see incomprehensible numbers... a red border...it's a *Guru message*! In my sleepy stupor I struggle in bewilderment to separate dream from reality: A Guru message on television? Did I leave my computer on? Is it cross-talking with my TV? Did an Amiga take over the broadcasting system (or the world) and then...crash? (I read science fiction.) Is someone playing a joke on me? Am I on...*Candid Camera*?

A Guru message on television? Did an Amiga take over the broadcasting system (or the world) and then...crash?

As waking reality brings the world into focus, I realize that the Preview channel's display must have been generated on an Amiga, and that someone there must have mistakenly taped a Guru message and played it over the cable. Or, maybe it was an inside joke for Amiga owners. Anyway, sometimes the truth is stranger than fiction.

John Hobbs
Fresno, California

THE GREAT 4000 HOPE

As a professional model-builder for the French industry of railway transport, I wanted a computer that had great potential for CAD applications

and was priced reasonably. I took a chance on the A2000. I then watched the Amiga become specialized on the low end in games and on the high end in video and 3-D. I have struggled to build my work around the Amiga, but the lack of professional software has dampened my enthusiasm.

Support from Commodore has been nil in France; it depends solely on the passion and concern of dealers. I keep my confidence, though, in what I consider the best computer in the world, and with the arrival of the A4000, I hope for more support for professionals, and a development of the market of professional Amiga software.

Guy Jourdan
Montelimar, France

IBM XT-ON-A-DISK

I know you will eventually review CrossPC, but I thought you might be interested in a reader's opinion of it. I use an IBM clone at work and had considered dumping my Amiga for a clone so I could take work home. Since I bought CrossPC, however, such thoughts have disappeared. CrossPC is serious software: It's a stable, multitasking, software-based IBM XT clone. I created a partition on my A3000 hard drive for CrossPC and use it for DOS and the PC word processor I use at work. I can start projects at home and complete them at work, or vice-versa, without *any* compatibility problems. I've found CrossPC more stable than the clone I use at the office.

The only down side is CrossPC's speed. With my 25-megahertz 68030, it is just acceptable. On the other hand, I have yet to see a PC clone advertised for \$40, which is the retail price of CrossPC!

Jeffrey T. Powell
West Covina, California

Great minds do think alike: See our review of CrossDOS 5.0 Plus CrossPC on page 78 in this issue's Review section. —Eds. ■

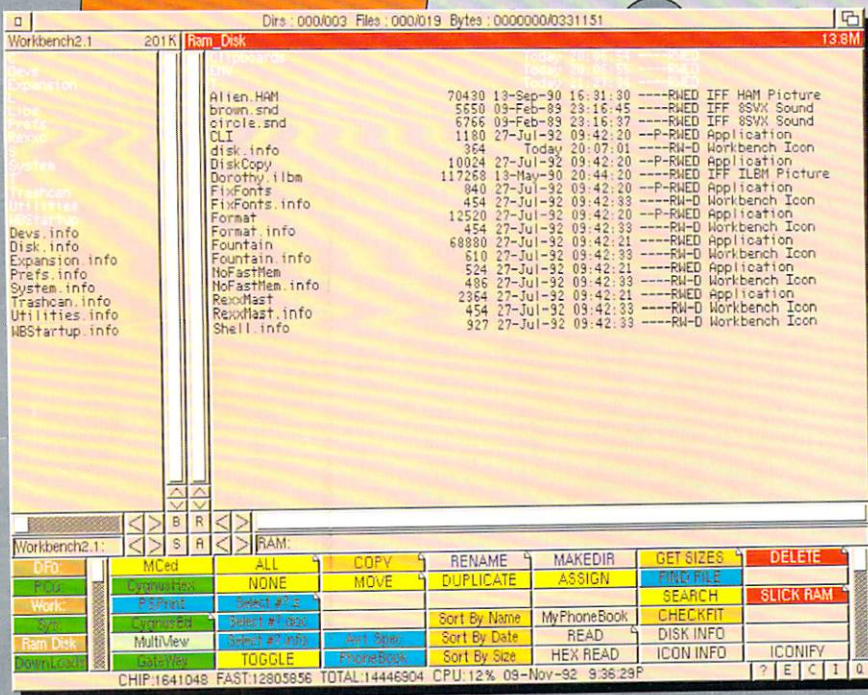
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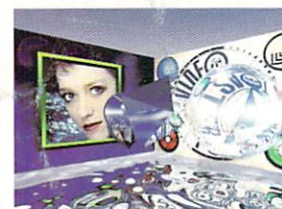
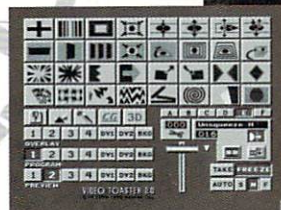


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